The Chemical Age

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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Overseas Chemical Trade

THOUGH there are signs, especially in the coal exports, that the country is gradually emerging from the depression left by the strike, the chemical overseas trade returns still fall short of expectations. The present comparison, of course, is with the best months of last year; when the comparison comes to be made with May and the succeeding months of last year the present returns will certainly look better, and the figures may once more begin ascending. For the present, the figures for March are not too good. As compared with the corresponding month of last year, chemical imports are up by £203,686, while exports have declined by £169,212, and re-exports by £38,279. The principal increases in the imports department are in acetic and tartaric acid, calcium carbide, coal tar products (increased from £48,915 to £154,704), crude glycerine, and sodium nitrate and other sodium compounds.

It is the recovery of our chemical export trade that most engages attention at present, and the first need here is to check the decline. There is a decrease again in the exports of sulphate of ammonia, the present figure being £188,626 as compared with £295,975 a year ago. The French market is at present a blank. The Dutch East Indies trade is down from £59,202 to £4,255, miscellaneous countries from £80,808 to £48,280, and Spain and the Canaries from £56,029 to £39,096. Japanese trade, however, is improving, the exports being over £4,000 up over last year. Bleaching powder, again, shows an increase. Sulphuric acid is just half what it was twelve months ago. Coal tar products have declined slightly, the decreases being in anthracene, benzol and toluol, naphtha, naphthalene, tar and creosote oils, but carbolic acid exports have risen from £17,343 to £26,579, and miscellaneous products from £22,914 to £27,417.

The two most satisfactory features are potassium compounds and sodium compounds, the former having advanced from £21,467 to £26,103, and the latter from £344,751 to £399,914. There is also an increase in glycerine exports from £59,878 to £73,193. Another encouraging total is that for painters' colours and materials, the exports of which have increased from £340,669 to £382,248. The increases are most marked in barytes, paints and colours in paste form, and prepared paints and enamels. There is a decline in dyestuff exports from £79,928 to £68,027. The decrease is confined to coal tar products, while in other sorts the exports have advanced from £7,799 to £9,747. While drugs, medicines, etc., have declined in the total, quinine and quinine salts have advanced from £16,320 to £19,834. The re-exports, which represent the merchanting industry in the main, continue to decline, the total decrease being from £106,155 to £67,876.

The Berthelot Centenary

NEXT October, in Paris, the centenary of the birth of Marcelin Berthelot will be celebrated, and it is certain that no effort will be spared, either in this country or elsewhere, to do honour to the occasion. Chemistry has always been too international for its practitioners to show any insularity of mind in assessing the value of work done by those of races or creeds other than their own, and the achievements of Berthelot are written so widely across the whole face of chemistry that his name becomes familiar to every chemist, even in his early student days. If proof of this be necessary, we may cite a text-book of organic chemistry which is now before us. The book in question (taken at random) is of German origin, and the index gives, under the heading Berthelot, six references, concerned respectively with the heat of combustion of substances, the preparation of methane, the synthesis of acetylene from its elements, the syntheses of ethyl alcohol and oxalic acid, and the constitution of camphor. This list, a very incomplete one, gives a faint indication of the wide sweep of his work. Berthelot was born in 1827, and died in 1907. His first scientific paper was communicated to the *Annales de Chimie et de Physique* in 1850; his last, in the very month of his death in 1907, to the

Académie des Sciences, so that he lived and wrought through the whole period of the rise and development of modern physical and organic chemistry. On the organic side his work was of fundamental importance in assisting in the destruction of the false distinction then drawn between organic and inorganic substances, for in the period 1854-1867 he carried out syntheses of acetylene, benzene, methyl and ethyl alcohol, and formic acid, among other things.

It was, however, by no means in this branch of chemistry alone that his achievements ended. The development of thermochemistry owes much to his labours, not only for his great advancement of the technique, but also for the clarity of thought which he helped to bring into the subject, and he ranks high among the pioneers of this very difficult branch of science. In the realm of agricultural chemistry also he made his mark. In addition to these many contributions to chemistry on its practical and theoretical sides, he found time to become an eminent authority on the history of the science, on which subject he published a number of valuable books. French scientists have often shown a versatility extending beyond the bounds of pure science to the conduct of affairs, and in this respect Berthelot (like his fellow-chemists Dumas and Lavoisier) was not found wanting, for he filled the posts of Minister of Public Instruction and Minister of Foreign Affairs.

At the forthcoming celebration various British scientific bodies will, of course, be represented. The French scientists who are organising the centenary celebrations propose, moreover, to perpetuate the memory of Berthelot by the establishment in Paris of a House of Chemistry. This is to contain laboratories, a library, lecture theatres, and other facilities for chemical activities of all kinds, and will be open to chemists of all nations. It is hoped by the organisers to house in it the International Union of Pure and Applied Chemistry and the International Office of Chemistry.

Seized German Patents Dispute

THE litigation over the German patents seized by the United States Government during the war and subsequently sold to the Chemical Foundation will, we suppose, come to an end sometime, but no sooner is one difficulty settled than another appears. The Supreme Court of the United States recently pronounced in favour of the validity of the sale of the German patents by the Alien Property Custodian to the Chemical Foundation, and presumably the ownership of the patents covered by the transaction is settled. Before the sale took place, however, Federal Trade Commissions granted to the National Aniline and Chemical Co., the H. A. Metz Laboratories, and the Consolidated Colour and Chemical Co. licenses to manufacture dyestuffs under certain of the seized patents on the payment of 5 per cent. royalty to the Government, the amount being subsequently reduced to 2 per cent. Having secured judgment in favour of its ownership of the German patents, the Chemical Foundation is now taking proceedings against the three companies named with the object of obtaining an "accounting" under the licenses, apparently to ascertain the amount of royalty due, and to secure the cancellation of the licenses. The terms of the licenses are not disclosed, but as they were issued prior to the sale, presumably they were sold subject to the conditions on which they were originally issued by the Government authorities. These points have now to be cleared up between the parties.

Chemical Engineering Activities

THE Chemical Engineering Group of the Society of Chemical Industry has lost none of its original enterprise from the successful foundation of the Institution of Chemical Engineers, the activities of the two bodies continuing to run side by side in the happiest way. The annual meeting of the group is fixed for Friday, May 6, and after the usual business and dinner, Dr. Ormandy is to present a paper on "Chemical Fire Extinguishers," which promises to be of considerable interest to chemical works. Dr. Ormandy, in dealing with the various extinguishers in use, will particularly discuss the difficulties arising from the corrosive nature of the materials employed; he will deal also with the modern foam methods, and with the special difficulties arising in fires occurring in chemical works. At the additional meeting of the group, to be held in London on Monday next, another paper of more than usual interest is to be presented by Professor Hinchley, who will describe the Holley permanent moulding machines for cast iron. A film will be exhibited, showing fully every stage of the process in operation, and samples of the castings produced will be shown. This meeting will be held in the private theatre of the American Film Co., in Wardour Street, and the chair will be taken by Mr. F. H. Rogers, chairman of the group, at 8 p.m.

The Calendar

Apr.		
22 & 23	Faraday Society: General Discussion on "The Theory of Strong Electrolytes."	Sir Leoline Jenkyns Laboratory, Jesus College, Oxford.
23	Mining Institute of Scotland: Annual General Meeting. 3 p.m.	Royal Technical College, George Street, Glasgow.
23	North of England Institute of Mining and Mechanical Engineers: A general meeting. 2.30 p.m.	Newcastle-on-Tyne.
25	Royal Society of Arts. Cantor Lecture: "The Measurement of Light." John W. T. Walsh. 8 p.m.	John Street, Adelphi, London.
25	Chemical Engineering Group: "Permanent Moulding Machines for Cast Iron." Professor J. W. Hinchley. 8 p.m.	American Film Co., Ltd., 89-91, Wardour Street, London, W.1.
26	Royal Photographic Society (Scientific and Technical Group): 7 p.m.	35, Russell Square, London, W.C.1.
27	Society of Glass Technology: Annual General Meeting.	Sheffield.
27	Institute of Chemistry (Belfast Section): Visit to Belfast Electric Power Station. 7.30 p.m.	Belfast.
27	Institute of Chemistry (London and South Eastern Counties Section): "Some Recent Legislation Affecting Chemists." G. Stubbs. 8 p.m.	30, Russell Square, London, W.C.1.
28	Institute of Metals (London Section): Annual General Meeting. 7.30 p.m.	83, Pall Mall, London, S.W.1.
29	Institute of Metals (Swansea Section): Annual General Meeting. 7.15 p.m.	University College, Singleton Park, Swansea.
30	North of England Institute of Mining and Mechanical Engineers. 3 p.m.	Lecture Theatre of Mining Institute, Neville Hall, Newcastle-upon-Tyne.

Reviews

PHYSICO-CHEMICAL METAMORPHOSIS AND SOME PROBLEMS IN PIEZO-CHEMISTRY. By Ernst Cohen. London: McGraw-Hill Publishing Co. Pp. 190. 12s. 6d.

Mr. George Fisher Baker, the donor of the magnificent new Chemical Laboratory at Cornell University, recently endowed, at the suggestion of Professor L. M. Dennis (Director of the Baker Laboratory), a Non-Resident Lectureship in Chemistry at Cornell. Distinguished chemical investigators from all parts of the world are to be invited to spend a semester there, giving courses of lectures and continuing their researches in the Baker Laboratory.

The first to be invited was Professor Ernst Cohen, Director of the Van't Hoff Laboratory of Physical Chemistry at Utrecht University, who spent the semester February-June, 1926, at Cornell University, and whose lectures are now published under the title given above.

Professor Cohen is known to the scientific world as the most eminent and exact investigator of polymorphism, especially in relation to the conditions of temperature and pressure which determine the stability or instability (metastability) of the various crystalline forms of pure substances and the factors which influence the rate of transformation of one form into another. In the first ten lectures, the theory, the experimental methods employed, and the results obtained in such investigations are very clearly illustrated by a number of examples, such as the cases of tin, antimony, cadmium, sulphur, thallous picrate, cadmium iodide, and ammonium nitrate. Since a very large part of the scientific work on these substances has been carried out by Professor Cohen and his collaborators, the treatment is fresh and vigorous and is kept in close contact with the results of the original investigations. The great lesson to be learnt from these lectures is the extraordinary care which must be taken in order to obtain a crystalline substance in a state of *physical* as well as chemical purity, owing to the slowness with which metastable solid states change into the stabler forms. Professor Cohen shows very clearly that many of the existing data with reference to the properties of solid substances apply to indefinite mixtures of various crystalline phases.

In the second part of the book (Lectures 11 to 21) the author gives a very interesting account of some of the investigations at high pressures which he and his collaborators have carried out at Utrecht. These deal with the effect of pressure on solubilities, diffusion-velocities, viscosities, reaction-velocities, transition-points, heats of solution, Faraday's Law of electrolysis, etc. The methods and apparatus employed in these difficult researches are described in considerable detail, whilst the theoretical interpretation is fully explained.

This volume of twenty-one lectures forms an admirable monograph, in which a very eminent investigator gives the reader a first-hand account of a considerable portion of the field of experimental research to which he has devoted himself during the last twenty years. It can be strongly recommended to all students of physical and chemical science as an example of how difficult problems can be solved by precise and accurate experimental investigation.

F. G. D.

CATALYSIS IN THEORY AND PRACTICE. By Eric K. Rideal and Hugh S. Taylor. London: Macmillan and Co., 1926. Pp. 516. 20s.

This book is a new, completely revised and enlarged edition of the one written by the same authors, which appeared in 1918. The first edition was a very welcome and valuable addition to the literature of chemistry. It was, in fact, the first special work in the English language which dealt in a scientific manner with the theoretical and practical aspects of catalysis. A still higher measure of praise can be accorded to the present edition. Since 1918 great advances have been made in the elucidation of the mechanism of chemical reactivity in homogeneous and heterogeneous systems, the nature of surface films and the mode of action of molecules adsorbed on surfaces. All these matters are very fully considered by the authors, who have by their own investigations largely contributed to scientific progress in these various fields of research. The book is therefore no merely industrious compilation, but is written by men who have a first-hand acquaintance with many of the subjects (and objects) with which they deal.

The general theory of chemical reactivity and catalysis is treated in the chapters entitled Early History; Criteria of Catalysis; Homogeneous Reactions; the Theory of Heterogeneous Catalytic Reactions; Promoters, Mixed, Supported, and Protected Catalysts; Catalyst Poisons and the Inhibition of Homogeneous Chemical Reactions; Catalysis by Radiant Energy; Colloidal Catalysts, whilst the special types of cases and the industrial applications are dealt with in the chapters on Processes of Oxidation; Hydrogen and Hydrogenation; Dehydrogenation; Nitrogen Fixation; Hydration, Hydrolysis and Alcoholysis; Dehydration; Catalysts in Organic Chemistry; Catalysis in Electrochemistry; Catalysis in Analytical Chemistry.

Many relatively recent advances in physical chemistry have a most important bearing on the theory of catalysis. Amongst such may be mentioned the theory of active molecules and molecular activation in the case of homogeneous reactions, the introduction of the concept of activity (G. N. Lewis) into the theory of reaction-velocity in liquid systems, the formation of unimolecular layers and molecular orientation at surfaces, the kinetic interpretation of adsorption and reaction velocity in heterogeneous systems (due to Langmuir), the discovery that the surface of a solid material contains "patches" in which the atoms or molecules are particularly active with regard to adsorption and catalysis (due to Garner, Rideal and Taylor), and finally the advances made in the study of chemical actions stimulated by radiant energy, electronic impact or impact of energised molecules.

Investigations in these various fields have very markedly contributed to a better understanding of the nature of catalysis. It is an excellent feature of the present work that the authors give a very good and clear account of these modern advances without neglecting the older work or the many important industrial applications of catalytic action. The book is well balanced in its treatment of the whole subject. The authors had a difficult task to accomplish, but they have succeeded well and produced a very valuable and important book. No student of chemical science and no applier of this science to the art of chemical manufacture can afford to neglect it. All must read and study it diligently.

F. G. DONNAN.

"ADVERTISEMENT WRITING." By Gilbert Russell. London: Ernest Benn, Ltd. Pp. 248. 8s. 6d. net.

Mr. Gilbert Russell has managed to pack a vast amount of practical advice about a difficult subject into the eleven chapters of his new book, *Advertisement Writing*. It is described as "a guide to the art and practice of copy-writing," and it justifies that description very adequately. It is before all other things a technical book concerned with helping and encouraging those who intend to make the writing of advertisement copy their profession. But the book is not without its value and special significance for those who are only occasionally called on to study the business of framing an advertising campaign or planning and criticising an individual advertisement. The author has an almost explosive vigour of style, which makes his book singularly entertaining and readable. His enthusiasm for his subject glows through his sentences, and this gift keeps the interest of each chapter vivid and alive in every line.

After discussing the place of advertising in modern life, the relationship of advertising to marketing and of marketing to business, the author devotes five chapters to the essentials of a good advertisement. He classifies copy under fifteen headings, thus:—"1. Pure display. 2. Mixed display. 3. Selling facts about the goods. 4. Copy based on selling plan. 5. Want-creating copy. 6. Indirect copy. 7. How to use copy. 8. Prestige copy. 9. Competition copy. 10. Describing a detail of the product. 11. Copy based on price. 12. Offering a free booklet. 13. Testimonial copy. 14. Pictorial copy. 15. Dialogue copy." The five essentials of a good advertisement he labels as follows:—1. A good article to write about. 2. The Right Policy. 3. The Right Sales Argument. 4. The Right Headline. 5. The Right Illustration.

From Mr. Russell's discussion of "The Right Policy," one paragraph may be quoted, and it deserves letters of gold: "The manufacturer who supposes that he can start an advertising campaign this week and expect to know next week whether it will pay for itself is expecting the impossible."

Chemical Trade Returns for March

Continued Decline in Exports

THE Board of Trade returns for March show that the imports of chemicals, drugs, dyes, and colours amounted to £1,669,625, an increase of £203,686 on March of 1926, and of £286,015 on March of 1925; that the exports amounted to £2,136,617, a decrease of £169,212 on March of 1926, and of £55,655 on March of 1925; and that the re-exports amounted to £67,876, a decrease of £38,279 on March of 1926 and of £62,364 on March of 1925. The detailed figures are given below:—

Imports

	Quantities. Month ended March 31, 1926.	Quantities. Month ended March 31, 1927.	Value. Month ended March 31, 1926. £	Value. Month ended March 31, 1927. £
CHEMICAL MANUFACTURES AND PRODUCTS—				
Acid Acetic ....tons	749	1,035	31,101	43,655
Acid Tartaric....cwt.	3,935	5,102	18,880	24,430
Bleaching Materials ,,	11,826	10,288	7,811	6,044
Borax.... ,,	7,941	6,143	9,248	6,868
Calcium Carbide... ,,	58,270	72,655	36,595	50,929
Coal Tar Products, not elsewhere specified.value	—	—	48,915	154,704
Glycerine, Crude ..cwt.	—	2,952	—	11,386
Glycerine, Distilled ,,	183	86	734	350
Red Lead and Orange Lead....cwt.	4,202	4,675	8,241	8,306
Nickel Oxide.... ,,	2,502	109	14,105	509
Potassium Nitrate ,,	18,717	10,023	19,780	11,255
Other Potassium Compounds ....cwt.	624,607	616,531	135,426	153,226
Sodium Nitrate ... ,,	78,393	223,263	48,637	143,840
Other Sodium Compounds ....cwt.	33,932	97,956	24,479	66,888
Tartar, Cream of .. ,,	4,946	4,578	17,836	17,350
Zinc Oxide ....tons	1,237	866	45,328	28,708
All other sorts....value	—	—	304,943	385,399
DRUGS, MEDICINES, ETC.—				
Quinine and Quinine Salts ....oz.	227,383	241,755	22,172	20,235
Bark Cinchona ...cwt.	1,656	678	7,892	3,103
Other Sorts ....value	—	—	278,290	124,039
DYES & DYESTUFFS, ETC.—				
Intermediates ....cwt.	111	—	1,781	—
Alizarine ....cwt.	107	132	3,181	3,891
Indigo, Synthetic . ,,	—	—	—	—
Other Sorts .... ,,	3,028	3,770	75,092	92,798
Cutch .... ,,	7,252	5,819	12,986	9,559
Other dyeing extracts ,,	3,357	4,034	11,353	16,860
Indigo, Natural ... ,,	67	—	1,562	—
Extracts for Tanning ,,	101,790	130,854	91,806	121,105
PAINTERS' COLOURS AND MATERIALS—				
Barytes, ground, and Blanc Fixe ....cwt.	67,488	69,054	16,148	15,423
White Lead (dry).. ,,	15,237	14,169	30,151	24,609
All other Sorts ... ,,	101,964	83,235	141,466	124,096
Total of Chemicals, Drugs, Dyes, and Colours....value	—	—	1,465,939	1,669,625

Exports

CHEMICAL MANUFACTURES AND PRODUCTS—				
Acid Sulphuric ...cwt.	11,257	1,922	5,674	2,726
Acid Tartaric .... ,,	1,332	1,093	7,563	6,485
Ammonium Chloride tons	286	244	8,790	6,003
Ammonium Sulphate—				
To France ....tons	—	—	2	—
Spain and Canaries tons	4,548	3,511	56,029	39,096
Italy.... ,,	636	604	7,967	6,857
Dutch East Indies tons	4,584	369	59,202	4,255
Japan.... ,,	6,444	7,454	82,543	86,687
British West India Islands and British Guiana tons	677	274	9,424	3,451
Other Countries ,,	6,516	4,382	80,808	48,280
Total .... ,,	23,405	16,594	295,975	188,626
Bleaching Powder .cwt.	28,656	41,641	13,921	19,354
COAL TAR PRODUCTS—				
Anthracene ....cwt.	1,140	—	441	—
Benzol and Toluol galls.	20,734	3,066	1,860	544
Carbolic Acid ....cwt.	10,707	13,350	17,343	26,579
Naphtha ....galls.	7,562	2,797	642	343
Naphthalene ....cwt.	1,427	1,303	922	755
Tar Oil, Creosote Oil, etc. ....galls.	5,132,566	3,955,677	162,453	132,523
Other Sorts ....cwt.	31,285	35,127	22,914	27,417
Total ...value	—	—	206,575	188,161
Copper, Sulphate of..tons	10,282	6,245	216,861	134,969
Disinfectants, Insecticides, etc. ....cwt.	38,853	34,390	96,318	79,674
Glycerine, Crude .... ,,	4,182	3,573	12,012	10,780
Glycerine, Distilled .. ,,	13,758	12,433	47,866	62,413
Total .... ,,	17,940	16,006	59,878	73,193
POTASSIUM COMPOUNDS—				
Chromate and Bichromate....cwt.	2,524	2,363	4,604	4,196
Nitrate (Saltpetre) ,,	1,062	1,831	2,148	3,476
All other Sorts ... ,,	5,223	5,057	14,715	18,431
Total .... ,,	8,809	9,251	21,467	26,103
SODIUM COMPOUNDS—				
Carbonate ....cwt.	468,062	607,398	135,968	182,072
Caustic.... ,,	193,994	206,810	141,072	152,781
Chromate and Bichromate.... cwt.	2,953	2,222	3,994	3,098
Sulphate .... ,,	31,521	23,698	4,940	3,916
All other Sorts ... ,,	50,997	58,585	58,777	58,047
Total .... ,,	747,527	898,713	344,751	399,914
Zinc Oxide ....tons	261	69	10,415	2,889
Other Chemical manufactures ....value	—	—	303,342	295,053
Total of Chemical Manufactures and Products value	—	—	1,591,530	1,423,150
DRUGS, MEDICINES, ETC.—				
Quinine and Quinine Salts ....oz.	141,609	191,727	16,320	19,834
All other Sorts value	—	—	277,382	243,358
Total .... ,,	—	—	293,702	263,192
DYES AND DYESTUFFS—				
Products of Coal Tar cwt.	10,831	7,067	72,129	58,280
Other Sorts .... ,,	5,672	8,607	7,799	9,747
Total .... ,,	16,503	15,674	79,928	68,027
PAINTERS' COLOURS AND MATERIALS—				
Barytes, ground, and Blanc Fixe ....cwt.	640	5,130	334	1,950
White Lead (dry).. ,,	6,493	4,211	14,430	8,305
Paints and Colours in paste Form ....cwt.	47,906	54,692	108,842	124,996
Paints and Enamels Prepared ....cwt.	30,370	37,751	100,800	127,457
All other Sorts .... ,,	58,492	56,556	116,263	119,480
Total .... ,,	143,901	158,340	340,669	382,248
Total of Chemicals, Drugs, Dyes, and Colours.....value	—	—	2,305,829	2,136,617

Re-exports

CHEMICAL MANUFACTURES AND PRODUCTS—				
Acid Tartaric ....cwt.	87	116	549	757
Borax.... ,,	—	730	—	790
Coal Tar Products value	—	—	1,453	6
Glycerine, Crude ..cwt.	—	—	—	—
Glycerine, Distilled ,,	—	—	—	2
Potassium Nitrate ,,	84	143	174	204
Sodium Nitrate ... ,,	5,260	1,352	3,662	843
Tartar, Cream of .. ,,	886	784	3,952	3,046
All other Sorts value	—	—	30,104	9,493
DRUGS, MEDICINES, ETC.—				
Quinine and Quinine Salts ....oz.	21,971	6,651	3,339	865
Bark Cinchona ...cwt.	236	268	1,238	1,173
All other Sorts ..value	—	—	42,101	36,832

	Quantities. Month ended March 31, 1926.	1927.	Value. Month ended March 31, 1926. £	1927. £
DYES AND DYESTUFFS—				
Cutch .....cwt.	2,617	1,427	4,127	2,247
Other Dyeing Extracts cwt.	166	145	1,341	1,138
Indigo, Natural ... ,,	2	28	82	555
Extracts for Tanning ,,	2,558	657	3,029	1,036
PAINTERS' COLOURS AND MATERIALS .....cwt.	8,095	2,555	7,550	7,774
Total of Chemicals, Drugs, Dyes, and Colours .....value	—	—	106,155	67,876

The British Association of Chemists

The Chemist's Interest in "Patents"

THE attitude of the profession towards patentable discoveries is a vexed question and one which will probably remain so for some time to come. Some years ago the National Union of Scientific Workers discussed this matter, and although no definite conclusion was arrived at, somewhat surprisingly, the balance of opinion seemed to be in favour of the view that the scientific worker, providing that he was reasonably paid, did not desire a share in the financial fruits of a discovery. It was maintained that the scientific worker laboured for the sake of the work alone, and that he desired only remuneration which should free him from financial anxiety. Concern with the commercial side was judged to be an embarrassment to the technologist.

It has to be borne in mind that this view represents the opinion of the academic worker, and would probably not hold for the qualified industrial chemist. At the same time, there is a good deal to be said for this point of view, provided the question of award is properly recognised. Although there are many exceptions, the scientific man is not in general able to deal with the many pitfalls in the path of those whose feet are set on the way of patentable discovery. Such matters require special knowledge of a kind which demands its price. Further, the individual or firm who finance a patent take all the responsibility of loss, an important matter which the scientific worker may not be in a position to face.

Secret Processes

This introduces another important issue. Quite definitely, a discovery which is to advance industry and therefore civilisation ought to be given to the world. With the doctor we must agree that a secret process (one by which the community does not benefit) ought not to be encouraged. Either the discoverer must develop the idea himself or he must put it into the hands of those who can. It would be a most unsatisfactory position if, having made a valuable discovery, its development were impeded by lack of commercial experience. That is the case for development by the business man.

On the other hand, there ought to be a system of award where important discovery is made. It is an unjust and unsound policy to accept the chemist's work without any regard to its commercial value. If a commercial undertaking makes large profits by the discovery of one of their technical staff, there ought to be a definite understanding in regard to award. In the case of the brain worker it is bad economy to pay a rigidly fixed rate. The chemist will do the quality of work for which he is paid. It will always reach a certain standard, but it will be automatic and lifeless if his remuneration is automatic. A recognition of this simple fact would do more than anything else to reanimate applied science in England, and it requires reanimating badly.

A Direct Interest

From another point of view it is a mistake to suppose that the chemist has no knowledge of business matters, and in many cases it might be advantageous to both parties if an interest in the proceeds of the patent itself were offered to the chemist. Men, scientific or other, are naturally interested in their own inventions, and could in many cases be trusted to grasp, besides all the technical details, all those in connection with a patent's commercial application. H. T. F. R.

The Organisation of Chemists

To the Editor of THE CHEMICAL AGE.

SIR,—In common with other chemists I have recently received an appeal from the National Union of Scientific Workers, issued with a view to extending the membership of that body among qualified scientists, and, by means of a questionnaire, to ascertaining the attitude of such workers towards a union in its present or a modified form.

The following paragraph from the appeal disclaims the strike weapon—"One misconception that seems to be existent should be removed: some non-members still ask whether to join the National Union of Scientific Workers would not mean being called out on strike in certain situations. The strike is not a possible weapon for scientific workers and the Union has never imagined the possibility of its employment"—but obviously leaves the presumption that combination is desired because force of numbers has effective application; though it seems to me that some measure of control over the freedom of action of members is essential, if the fact of union is to mean strength.

Do scientific workers want anything unreasonable? Is professional dignity to descend to collective bargaining? In the long run is such bargaining ever more effective than education in securing legitimate aims?

I venture to submit my opinion that the only sound, dignified, and economic means by which scientific practitioners can enforce the recognition of science and of their own status is reasoned, yet vigorously insistent, propaganda. It is a method which is irresistible, and one which leaves the individual unrestricted. The object of union should be to secure the income necessary for such propaganda.—Yours, etc.

J. BERTRAM WARD.

London, S.E., April 20.

The Gow Lectures

To the Editor of THE CHEMICAL AGE.

SIR,—With reference to the Academic Registrar's letter of March 8, I regret to have to inform you that owing to unforeseen circumstances the Gow Lectures on the Colloid Chemistry of the Rubber Industry, arranged to be given by Dr. E. A. Hauser in May next, have had to be postponed. It is hoped to arrange for the lectures to be given towards the end of the year. In these circumstances we shall be much obliged if you will kindly cancel any notice in regard to the lectures which you may have been good enough to insert in your journal.—Yours, etc.

J. H. JAMES,
Clerk to the Academic Registrar.

University of London,
South Kensington,
April 20.

New York Chemical Exposition

PLANS for the Chemical Industries Exposition, to be held in the Grand Central Palace, New York, September 26 to October 1, 1927, are rapidly maturing, and not only American but foreign manufacturers of chemical products are showing a keen interest. One of the most interesting exhibits will be that of the National Safety Council. This will contain charts outlining work in the chemical industry, and particular attention will be paid to investigations into the hazards of benzol and spray painting. There will be a monograph of sixteen chapters on "Safety in the Chemical Industry," published by the American Chemical Society. An exhibit of new metal alloys will be shown for the first time, as well as a number of new chemical products for use in other industries and the arts. The Container Section will be the most comprehensive exhibit, and will include displays by can manufacturers and machines for filling, labelling, sealing, weighing, and packing. The Southern Section will contain an extensive railway exhibit.

The Students' Courses show a further expansion. Dr. A. D. Little, Dr. H. E. Howe, editor of *Industrial and Engineering Chemistry*, and Mr. W. Haynes, president of *Chemical Markets*, will speak on various subjects, and there will be papers on various aspects of chemical engineering. It is estimated that space will be at a premium before the Exposition opens in September.

Indian Chemical Notes

(From Our Indian Correspondent.)

The third annual meeting of the Indian Chemical Society was held at Lahore in the first week of January, under the presidency of Professor J. L. Simonsen, D.Sc., of the Indian Institute of Science, Bangalore. Dr. J. N. Muckerji, the secretary of the Society, read the report, which showed an all-round improvement in the position during 1926. The number of fellows was 300, and the journal of the Society, which was doing useful work, was in great demand. A new section of the Society was opened at Bombay during 1926, the other one being at Lahore. Donations to the extent of Rs. 3,000 had been received and promised towards the Reserve Fund. In short, during the space of two years and a half in which the Society had been in existence, it had progressed rapidly, and was second only to the Asiatic Society of Bengal in the number of fellows and in its status. Its publications had acquired international reputation. Dr. Gilbert J. Fowler, of the Bombay Presidency, was elected president for the coming year.

Paper Pulp Manufacture

The State of Hyderabad has been taking some very important steps in the matter of forest research. The Department of Industries in the State has been collecting data for the establishment of a paper pulp factory utilising the various species of bamboos available in the State forests. Negotiations are in progress which are expected to result in the establishment of a factory in the near future. Three sites have been selected as affording facilities for such a factory. The bamboo to be used is of the species known as *Bamboosa arundinaval* and is available in abundance at all the sites.

"Russa" Oil Production

Another investigation which has been the subject of prolonged research by the Forest Department, in collaboration with the Chief Chemist, is that of "Russa" oil production. "Russa" grass has been distilled and tanning barks and fruits analysed and figures of yield, etc., worked out on commercial basis. The resultant "Russa" oil has been reported on very favourably, and endeavours are being made to undertake the distillation by a steam process on a large commercial scale. Similarly, at the instance of the Conservator of Forests, a wild species of "aloe," growing abundantly in the forest and used by local ryots for rope making, was supplied to the Government Weaving and Demonstration Department for investigation, and has been declared to be very useful after bleaching. It is being subjected to further severe tests and is expected to become a very useful factor in the local carpet industry.

Essential Oils

The production of essential oils in the Mysore State, which was begun some years ago, has been showing steady progress, but recently some difficulty has been experienced in obtaining the requisite raw materials. An attempt has, however, been made to solve this problem by the growth of plants and flowers from which the required extracts could be obtained. The high price of alcohol is another factor which has adversely affected the growth of the industry, but the Department of Industries is actively investigating the possibilities of obtaining supplies of the spirit at a cheaper rate. At the present time there are no less than thirteen Anderson oil-expellers in Mysore, the combined capacity of the large mills being about 25 tons of oil per day.

Mineral Production

According to the Government report on mineral production in India for the year 1925, now published, the total value of the production amounted to £27·5 millions, which is a decrease of £1·1 millions compared with the previous year. An increase or decrease in value does not, however, correspond to a similar variation in output.

Manganese, Salt, Saltpetre

The output of manganese ore rose from 803,000 tons to 839,000 tons. There is a steady decrease in the exports of manganese ore. This is due to the fact that manganese ore is being increasingly consumed at the works of the three principal Indian iron and steel companies, not only for use in the steel furnaces and in the manufacture of ferro-manganese, but also for addition to the blast furnace charge in the manufacture of pig iron.

The output of salt has decreased from 1·6 million tons to 1·2 million tons, and that of saltpetre from 167,000 tons to 127,000 tons. Almost the whole of the output of the latter is exported.

Lead, Tin, Tungsten, etc.

As regards lead, there was an actual increase of 33,600 tons in the quantity of lead-ore mined at the Bawdwin mines, but the total amount of metal extracted decreased from 50,500 tons of lead and 1,200 tons of antimonial lead in 1924, to 46,000 tons and 1,100 tons respectively in 1925. The quantity of tin produced increased from 1,880 tons to 2,300 tons. A new part of Amherst district in the Kya-in township is being tested for deposits, and the results are being keenly watched. Tungsten ore increased from 739 tons to 772 tons. The whole of the output was derived from Tavoy. The magnesite industry in the Salem district of Madras continues to flourish. During 1925 there was an increase of more than 5,000 tons over that of the preceding year. The total, 29,620 tons, is the highest output yet recorded.

The New School of Mines

The Viceroy opened the new School of Mines at Dhanbad in the second week of December. It will cater for the educational needs of the whole of India, so far as mining, engineering, and geology are concerned. The establishment of such a well-equipped institution was decided upon in 1920, but owing to various difficulties the actual construction of the buildings was undertaken in 1924, and a start is being made now in the courses of instruction. It will be the aim of the governing body of the school to provide instruction of a grade equal to that provided at the Royal School of Mines. Out of about 200 students who applied for admission to the school, 50 have been selected after adequate tests. The School has been provided with excellently equipped laboratories for the teaching of chemistry, geology, physics, surveying, engineering, and mining, and in addition a set of workshops has been provided for the teaching of carpentry work, blacksmith's work, machining and engineering work generally. The curriculum of the school has been designed so as to blend theory with practice throughout. The school will be staffed with teachers of the first grade.

Imports of Artificial Silk

The imports of artificial silk goods into India are showing steady expansion. The half year from April to September, 1926, recorded remarkable progress, and the total imports during the period amounted in value to Rs. 185 lakhs as against Rs. 92 lakhs in the corresponding period of the previous year. The imports of yarn doubled from 1 million lb. to 2 million lb., the largest imports being from Italy, which increased her share during the period from ½ million lb. to 1·1 million lb. The imports from the United Kingdom declined slightly to 253,000 lb. It was, however, in the artificial silk piece goods mixed with cotton that the United Kingdom made her greatest progress. The total imports from all countries into India of these goods during the said half year reached 19 million yards, as against 6 million yards in the corresponding period of the previous year. Of these 19 million yards, about 8 million yards came from the United Kingdom and 6 million yards from Italy. Both these countries increased their shares considerably, the former from 2·7 million yards to 8 million yards and the latter from 1·8 million yards to 6 million yards.

Bengal Oil Industry

A special inquiry conducted by the Industrial Chemist into the oil milling industry of Bengal has shown certain defects. The machine-operated ghanny system is mostly in vogue in Bengal because it is the only system which effectively preserves the peculiar pungency of mustard oil, a quality which is greatly valued by consumers. This pungency is produced as a result of the hydrolysis of glucosides by the gradual addition of small quantities of water during the process of expression in the ghanny. Other processes of expression, such as the hydraulic press-worked or the expeller-operated plant, do not possess these advantages to the same extent, while the solvent recovery process is greatly handicapped owing to the total elimination of the pungent smell in the product, as well as the difficulty of eliminating all traces of solvent. It can safely be said that the prosperous condition of the industry will not be recovered until an improvement on the mechanical side of the industry is effected, and until there is more expert control of the oil expression efficiency, which can only be secured when the process is subjected to chemical analysis and expert control.

Steam Transport for Chemical Trade

The "Smokeless" Steam Wagon

THE startling success of the first Steam Transport Conference, held a few weeks ago, has undoubtedly called attention (a correspondent writes) to the efforts now being made to popularise the "smokeless" steam wagon—a vehicle so British that it is practically unknown to American transport men. The President of the Commercial Motor Users' Association (Mr. E. S. Shrapnell-Smith) recently suggested that it would be a sorry day if steam were ever allowed to lose its pride of place, and, on behalf of the coal trade, a specially lettered white wagon recently paraded Whitehall with wording: "Every pound of fuel this British-built vehicle uses means work, wages, and comfort for British men, women, and children."

There is a promise, in fact, that home-fuel burning wagons to-day are about to play an increased part in chemical transport. Already, "steamers" so closely approach to a smokeless silent standard that occasionally they are mistaken for large electrics by Americans to whom the type is quite unknown. In particular, the road-snatching and vibration of the petrol lorry is absent, as is the carbon-monoxide exhaust. Road performances, too, have improved until now a wagon runs twenty-five to thirty miles on one water fill-up, and as many as a hundred and fifty miles on one fuelling. Standard features, also, include one-man motor type controls and steering, large cabs with windscreens, flexible springing, a speed range in some cases as extreme as ½ to 35 m.p.h.—making the wagon good for both traffic and open road work—a slow running engine (in the Super-Sentinels, the r.p.m. at 12 m.p.h. is 300, as against 1,800 usually in a "petrol"), and both steam and drum brakes, giving a dual control; in addition, there is usually a reserve of power for handling a six-ton trailer.

As to running costs to-day, those for a 1927 wagon may be calculated on the following:—

First cost—£840.

Tax and insurance	£60 plus £30 a year.
Maintenance	£60 a year.
Wages	£1 5s. a day.
Tyres	2·1d. a mile.
Coal	1·2d. a mile. (Coal at 30s.)

In regard to the authenticity of the suggestion that steam coal will shortly be obtainable at 30s. a ton—just one-and-one-third the pre-war rate—it is pointed out that certain makers are now in close touch with South Wales coal owners, who have been found ready to appreciate the sales-help afforded by an increase on the 14,000 steam wagons on the roads. Already, of course, cheap coals are obtainable from 15s., while the L. and N. low temperature process promises a smokeless fuel at 20s. a ton, according to Lt.-Col. Moore-Brabazon, late of the Ministry of Transport.

Chief faith, perhaps, is pinned to the new steam association, formed on the lines of Lord Montagu of Beaulieu's Electromobile Association. In connection with the new body, a campaign to obtain lowered taxation—both on the plea of lessened road damage, and of burning home fuel as against imported petrol—is now in full swing; combined with the cheaper insurance the Association states it is confident of being able to effect, the anticipated rebate is likely to reduce in important fashion the cost of running.

Full particulars of the new organisation, of advantage to all steam users, may be obtained from Mr. F. G. Goddard, c/o The Sentinel Waggon Works, Ltd., Shrewsbury.

Big Australian Power Alcohol Plant

DR. PAGE, the Acting Prime Minister of Australia, visited Sarina, near Mackay, Queensland, on February 17 and opened a plant constructed by the Australian National Power Alcohol Co., for the distillation of alcohol from molasses and cassava. The plant has been designed to produce 1,000,000 gallons, and, if necessary, 2,000,000 gallons of power alcohol a year. In addition to Dr. Page, the Premier of Queensland (Mr. McCormack) and the chairman of the International Sugar and Alcohol Co. (Sir James Calder) were present at the opening ceremony. Next year two other works of similar capacity, one at Cairns and one at Townsville, will be completed.

European Interests of Du Ponts

Connections with British, German, and French Industry

AN account has recently appeared in the American Press of the connections of E. I. du Pont de Nemours and Co. in Europe. The most important development, states the *Wall Street Journal*, is du Ponts closer contact with the British, German, and French chemicals trusts. "Du Ponts have become shareholders in British Imperial Chemicals through their close relation with Nobel Industries. Du Ponts and Nobel are the leading members of the dynamite group. They and the German companies, Hamburg-Nobel, and the Koeln-Rottweil—these two now practically merged in the German chemicals trust—formed a small dynamite company last year, with a view to co-ordinating markets and prices. This is now doing a thriving business in commercial explosives, especially to the Latin Americas. Du Ponts are in partnership with Nobel on a 50-50 basis in the manufacture of Duco paints. This business is being developed conservatively in the face of competition from other nitro-cellulose paint makers. An extensive advertising campaign in Britain has just been begun. Du Ponts also come in touch with Imperial Chemicals in purchase and sale of several chemicals. Du Ponts, however, do not seek to compete actively in the British chemical market.

Du Ponts and The I.G.

"Du Ponts are extending their interests in France, according to recent French reports. A Duco plant is about to be opened with du Ponts participating. William Higgins, of Wellin and Higgins, is to be the manager. Du Ponts have their principal explosives office in France, close to the Central Dynamite Association. They have been connected with Comptoir de Textiles Artificielles in France and in exchange for the French process turned over a large block of shares. M. Gillet, head of the French company, is regarded by many as the leading French industrialist to-day, and as probably the richest man in France. Extension of the cartel movement in Germany has brought du Ponts and the German chemicals trust in close contact. Formerly they were bitter competitors in all fields, but now in some they are actually associated. Through taking an active part in reorganising the international dynamite trust, du Ponts bought shares in the principal German dynamite companies, principally Koeln-Rottweil. The latter has now been entirely merged in the I. G., the German chemicals trust. The I. G. also controls the output of Hamburg-Nobel and will eventually assimilate it.

"Du Ponts were given the opportunity of disposing of their shares in Koeln-Rottweil, but decided instead to take I. G. shares when the Koeln-Rottweil conversion took place. In addition to these shares, du Ponts are said to have bought shares in the open market. Their purpose, however, contrary to market rumour, was not to get control in I. G., but as an investment to profit by share appreciation, which has since resulted from the doubling in value of the I. G. securities."

Anglo-American Pyrites Negotiations

NEGOTIATIONS between the Rio Tinto Co., Spain, owned in England, and Davison Chemical Co., Baltimore, involving the pyrites ore properties in Cuba of the Davison Sulphur and Phosphate Co., are (states *Chemical Markets*) in progress. Relations between the Rio Tinto Co. and the Davison Co. have been quite close for a long time, the Davison Co. getting large supplies of pyrites used in the manufacture of sulphuric acid from Huelva, Spain. The story of pending negotiations is said to receive further colour from the fact that Mr. C. Wilbur Miller, president of the Baltimore companies, is, it is stated, now in London, supposedly in connection with the negotiations, while Sir Auckland Geddes, president of Rio Tinto, some time ago stayed at the country residence of Mr. Miller. Mr. Allan Carter, a director of the Davison Co., is also said to be in London. The Cuban properties of the Davison Sulphur and Phosphate Co. embrace about 3,280 acres, on which more than 2,300,000 tons of pyrites have been blocked out so far. Over $4,000,000 have been expended up to date in the development of the property, which is carried on the books of the parent corporation at a valuation of $8,000,000.

British Synthetic Ammonia Progress

Recent Developments at Billingham

RAPID progress is being made with the construction of the huge works of Synthetic Ammonia and Nitrates, Ltd., at Billingham-on-Tees, where a plant is being erected which, with the exception of two in Germany, will be the largest synthetic ammonia plant in the world. For the past three years a commercial scale unit for the manufacture of sulphate of ammonia has been in operation at Billingham, and its success has resulted in the great extensions now in course of completion. According to an account given in *The Yorkshire Post*, in 1924 the output of sulphate of ammonia at Billingham was 28,000 tons, and by last year it had increased to 73,000 tons. The present developments will enable an output of 315,000 tons to be obtained in 1928, or a total of half a million tons of sulphate and other products. Ammonium nitrate is also made at the works through the oxidation of ammonia to nitric acid, a process which is of the greatest importance in providing the materials for the manufacture of explosives. The extensions which are now being carried out provide for the manufacture of numerous additional products, including ammonium bicarbonate, sodium nitrite (an important raw material for dyes), and anhydrous ammonia for the refrigeration industry. Concentrated nitric acid is also a product, and solvent methanol will be manufactured on a considerable scale. The only by-product produced is carbonate of lime, used for cement-making, agricultural purposes, and for damping in collieries.

Large buildings are now being erected to house the plant used in the various processes. Some 250 acres of the 800 acres of land available is actually covered by buildings, whilst 25 miles of railway sidings link up the different manufacturing units and connect the whole to the London and North Eastern Railway system. An interesting development which is being carried out in connection with the extension of the plant is the sinking of a mine to work the great deposits of anhydrite, or anhydrous gypsum, which exist under the site of the works. In the extensive laboratories which have been erected, a wide programme of chemical and engineering research is being conducted for the development of new and the improvement of old processes. There is also a semi-technical section where processes are tested on a scale large enough to serve as working models for manufacturing conditions, and to train men to run the full-scale plants which are being erected. The activities of Synthetic Ammonia and Nitrates, Ltd., have wrought a transformation in the Billingham district. The township has been trebled in size, still further houses are being built, and employment has been provided for 3,000 persons.

Boiler Level Regulators

IN an illustrated brochure, the makers of the "Thermofeed" regulators (Ronald Trist and Co., Ltd., of 56, Victoria Street, Westminster, London), set forth their claim that the cost of the "Thermofeed" on an average (dealing practically with every class of steam boiler) ensures the evaporation of a given extra amount of steam from the same quantity of fuel used, and this excess volume has been found, as a minimum, to be sufficient to repay the original cost of the device within six months. "Thermofeed" regulators, when fitted to boilers, will maintain the working level with an altitude fluctuation not exceeding ½ in. from a predetermined point (if a water tube boiler, ¼ in.). This condition, of course, is subject to the feed pump having at all times a sufficient capacity for the maximum demand of the boiler plant. This maintenance of level is very important, it being axiomatic that for every boiler there is a height at which, if the water level is kept constant, the fullest efficiency is obtained from the fuel consumed. The "Thermofeed" operates solely by the water level, and independently of the pressure of the steam and of the temperature of the feed. In the brochure mentioned, the structure, operation, and installation of the regulator are very carefully set out. The same company deals with "S.E.A." rings, cups, and collars for use as automatic packings for stuffing boxes, pumps, valves, compressors, etc., which have important applications to machinery working with chemicals; with the "Hilo" water alarm; and with "Thermofeed" differential and pump governors. The company specialise in, among other things, the production of power-saving appliances.

New British Chemical Standard

Cast Iron "D2"

THE organisers of the British Chemical Standard movement inform us that they now have ready a grey phosphoric cast iron in the form of very fine turnings and having the following standardised composition:—

Silicon	1·31 per cent.
Phosphorus	1·07 ,,
Manganese	1·64 ,,

The approximate composition of the elements are graphitic carbon, 2·5 per cent.; combined carbon, 0·8 per cent.; sulphur, 0·03 per cent.

This iron takes the place of iron "D" as regards phosphorus content, but also fulfils the need for a low silicon iron and a high manganese pig iron standard. Used in conjunction with Hematite Iron "A," this covers the range of most irons met with by the foundry chemist. As usual, it is packed in bottles containing 500, 100, and 50 grms. of fine turnings free from dust, and may be obtained either from organising headquarters or most laboratory furnishers at a price which is estimated as sufficient to cover the cost.

Drug and Chemical Workers' Union

A RESOLUTION was passed at the annual general meeting of the National Union of Drug and Chemical Workers protesting emphatically against the Bill introduced by the Government to circumscribe the activities of trade unions, and expressing the opinion that the Government have no mandate for such action and that the Bill as presented was animated by class bias. The members therefore pledged themselves to use every means in their power to assist the Labour movement to defeat the Bill. Among other resolutions passed was one that members should take every opportunity of getting into communication with foreign and colonial organisations of drug and chemical workers, and one instructing the National Executive Council to call the attention of Government departments to the need of more frequent and closer inspection of work places in the drug and chemical industry. It was also resolved that the meeting registered its emphatic protest against the scandalous wages and conditions offered or operated for pharmacists and industrial chemists, and that it was of the opinion that economic organisation would be the means of improving wages and conditions and raising the status generally of these men and women.

Empire Sugar Organisation

IT was decided at a recent meeting of the Empire Sugar Section of the British Empire Producers' Organisation, which represents the entire sugar-producing industry of the British Empire, to constitute the section into a federation, the membership of which will include the producers and refiners of the sugar industry and all others interested in the production, transport, and marketing of Empire sugar. The objects of the federation are to promote the interests of the sugar industry of the Empire, and to collect information in regard to all matters relating to methods of production, transport, and marketing; to carry out a programme of propaganda and publicity with a view to increasing the production, sale, and consumption of Empire sugar, and to obtain such treatment for Empire-produced sugar as will secure stability, and generally to take such action as may be considered desirable in the interests of the Empire sugar industry.

American Chemical Society Research Scheme

THE American Chemical Society intends to establish a National Research Institute for Chemical Education with an initial endowment of $2,000,000. The institute will be at some university, as yet undetermined, whose work in both chemistry and education has been notable. There will be a board of seven trustees, seven scientific advisers, a general director, and five departmental directors, for whom a salary of $10,000 each is provided in the tentative budget. The departments planned are graduate, undergraduate, industrial, high school, and historical. The tentative budget also provides for five fellowships of $1,000 each, and $5,000 annually for an extra summer faculty. The estimated cost of the building to be provided is $500,000.

From Week to Week

FREDERICK MARTIN, aged 60, was killed on Thursday, April 14, as the result of falling 100 feet from the roof of the Netham Alkali Works, where he was engaged in repair work.

THE PAPER TRADE forms the subject of one of the preliminary reports on the Third Census of Production in the *Board of Trade Journal* for April 21, which also contains an account of the growth of the pulp and paper trade of Canada since 1890. Details in regard to other countries are also given.

MR. R. C. CALLISTER, formerly of the Ballarat School of Mines staff, who was sent to this country some time ago by the Australian Bureau of Science and Industry to engage in research work in pottery clays, has commenced work at the pottery school at Stoke-on-Trent, under Dr. J. W. Mellor, F.R.S.

UNEMPLOYED INSURED PERSONS in Great Britain at March 21 in the chemical manufacturing industry numbered 6,033 (males 5,189, females, 844). Corresponding figures for explosives manufacture were 1,406 (males 865, females 541); for paint, varnish, japan, red and white lead manufacture, 900 (males 731, females 169); and for oil, grease, glue, soap, ink, match, etc., manufacture, 5,487 (males 4,508, females 979).

INSURED PERSONS in the chemical manufacturing industry in Great Britain and Northern Ireland at July, 1926, numbered 94,530. The percentage unemployed, on this basis, at March 21, 1927, was 6·4, and for Great Britain only also 6·4. For Great Britain the percentage of unemployed in the explosives industry was 7·6; in the paint, varnish, etc., industry, 5·2; and in the oil, grease, soap, ink, match, etc., industries, 6·9.

APPLICATIONS ARE INVITED for the following appointments: A Ramsay Memorial Fellowship for Chemical Research, £250 plus £50 for expenses. The Secretary, Ramsay Memorial Fellowship Trust, University College, Gower Street, London. June 6.—Demonstrator (man or woman) in the Chemical Department of Bedford College for Women (University of London), Regent's Park, N.W.1. £250—£300. The Secretary. May 7.—Gas Examiners (part-time). The Clerk of the L.C.C., The County Hall, Westminster Bridge, S.E.1. May 9.

AN AMALGAMATION has just taken place between English China Clays, Ltd., and the North Goonbarrow China Clay Co., Ltd. The latter firm has been associated from its inception with the name of Nicholls, the latter, with the Stockers, Loverings, Dyers, and Martins, being among the pioneers of the China Clay industry. Mr. Hart Nicholls, who, with his brother, has a controlling interest in North Goonbarrow, has now joined the board of English China Clays, Ltd. North Goonbarrow has been noted for the quality of its clays, which are amongst the best produced, so that English China Clays, Ltd., becomes possessed of a still further range of the best clays by the new amalgamation.

THE JAPANESE SODA ASH INDUSTRY is receiving the attention of the Japanese Government. Protection and the grant of a subsidy will be included in the next fiscal year's additional budget and presented to the Diet. The subsidy will be given to the Asahi Glass Co., with a factory at Makiyama, in Fukuoka Prefecture, and to the Japan Soda Co., at Tokuyama, in Yamaguchi Prefecture. The first plan provides for a grant of yen 700,000 a year at the rate of yen 23 a ton for an annual capacity of 30,000 tons. The second plan provides for a grant of yen 300,000 at yen 10 a ton for the same annual capacity. No decision has been reached as to the amount. The Japanese soda ash industry in Kwantung leased territory is excluded from the plan. Count Kodama, Governor of Kwantung, has decided to start a movement with the Government authorities for the grant of subsidy totalling yen 3,000,000 in two years for the protection and promotion of the soda industry in Kwantung. It is not believed that this movement will succeed. The subsidy is to be given those already in existence, and a new company is to be incorporated in Kwantung.

THE CIVIL SERVICE INDUSTRIAL COURT has just delivered its decision on the claim of the higher technical staff of the Science Museum for improved salary scales. The case, which was presented by the Society of Civil Servants, was heard on March 7 and 14. The claim was: Deputy keepers, £900 a year (present scale, £600–£25–£700); assistant keepers, £475–£25–£800 (present scale, £400–£25–£600); and assistants, £250–£20–£290–£25–£440 (present scale, £250–£20–£400). These scales are exclusive of bonus. The Court, in giving their decision, say that they are of opinion that since the scales were put into operation there has been no difficulty in obtaining suitable recruits to fill vacant posts at the Science Museum, and the evidence has satisfied them that the scales of pay are adequate to attract the right type of candidate in the future. They are therefore of opinion that the case for altering the scales of pay generally has not been made out. The Court make no alteration in the present salary scales, but award to each of the present holders of the offices of deputy keeper and assistant keeper, as from April 1, 1927, the same scales of pay as deputy keepers and assistant keepers in the Victoria and Albert Museum. The award is to be personal to the present holders of those offices.

DR. L. B. MENDEL STIRLING, professor of physiological chemistry at Yale University, has been awarded the American Institute of Chemistry's gold medal for 1927.

AN OUTBREAK OF FIRE OCCURRED on Tuesday at the works of Edward Taylor, Ltd., chemical manufacturers, Salford, owing to the boiling over of some chemicals. The prompt arrival of the fire brigade prevented serious damage.

MR. G. STUBBS, F.I.C., Deputy Government Chemist, will speak on "Some Recent Legislation Affecting Chemists" at a meeting of the London and South Eastern Counties Section of the Institute of Chemistry, at a meeting which will be held at the Institute on Wednesday, April 27.

DR. JOHN E. TEEPLE has announced his decision to retire from the positions of vice-president and director of the American Potash and Chemical Corporation, his resignation having taken effect about April 1. He will continue his connection with the organisation as consulting chemical engineer.

THE FORMATION OF Scottish Artificial Silks, Ltd., a company interested in the manufacture of artificial silk, is announced. The concern has mills in Kirkcudbrightshire, and has recently purchased the old Argyll Motor Works at Alexandria. Operations are to be started in the near future at both places. The company has been registered in Edinburgh with a nominal capital of £250,000.

AMONG CHANGES IN WAGE RATES during March (as reported in the *Ministry of Labour Gazette*) was one affecting the employees of certain firms engaged in the manufacture of glue and chemical manure in the Bristol district. The change, which took effect as from the first week in March, was a decrease of 1s. 9d. per week for men and of proportionate amounts for women and youths, the minimum rate for men (after the decrease) being 40s.

TWO CLAYTON YOUTHS, one aged 19 and the other aged 14, were charged at Manchester city police court on Thursday, April 14, with stealing three lb. of lead from the roof of the works of Alfred Smith, Ltd., chemical manufacturers, Bank Street, Gorton. The elder lad was bound over for twelve months and the younger, who was stated to have been before the court three times previously, was remanded with a view to being sent to a reformatory.

CHEMISTS' CONTRACTS OF EMPLOYMENT are to be studied by a committee of nine, representing employers, chemists, and the public, according to a resolution unanimously passed at the recent meeting of the American Institute of Chemists. The salient points brought out in the discussion were the fact that many misunderstandings on both the part of the employer and the employee could be avoided by a more complete and definite definition of the rewards, and a better understanding of the proper relations between the two parties.

THE PREPARATION OF VANADIUM METAL was described in a paper read before the Industrial Division of the American Chemical Society at a recent meeting, by J. W. Marden and M. N. Rich, of the research laboratory of the Westinghouse Lamp Co. It was stated by these authors that contrary to previous statements in the literature this metal was not like arsenic or bismuth. It was not brittle but could be cold worked into wire or other forms. A number of physical properties, such as specific gravity, electrical conductivity, etc., have been determined. In properties vanadium resembles tantalum.

RECENT WILLS INCLUDE: Mr. Edward James Woolley, of West Thorp, Bowdon, Cheshire, chairman of James Woolley, Sons and Co., Ltd., manufacturing chemists, Victoria Bridge, Manchester, £167,173. Probate is granted to Mrs. Woolley, the widow, Frank Youatt, of Withington, Manchester, and Beatrice Joan Harper, of Middlewich, daughter. He gives £500 to Frank Youart, £5,000 to his wife, small legacies to servants, and the residue in trust for Mrs. Woolley for life, and then, as one moiety each, in trust for his son and daughter, George Stephen and Beatrice Joan Harper.—Mr. John Edwin Calvert Lord, of St. Annes-on-Sea, managing director of J. E. C. Lord (Manchester), Ltd., tar distillers and manufacturing chemists, formerly connected with Huddersfield, who died last October, £127,441 (net personalty nil).

Obituary

DR. ALBERT GASWINDT, formerly editor of the *Deutschen Färberzeitung*, aged 80.

DR. HERMANN D. ENGELHARDT, for the past 32 years head of the analytical department of Sharp and Dohme, on February 9, in Baltimore. He was a member of the Revision Committee of the United States National Formulary, of the American Chemical Society, and other societies.

MR. MARTIN LUTHER FINCH, managing director of the firm of James Gibbs and Finch, Ltd., chemical manufacturers, Cattedown, at his home at Plymouth, on April 14, at the age of 74. He had spent practically the whole of his life in Plymouth, going to the town from Bristol as a child, and upon completing his education joined the firm. He rose to the position of partner and finally to that of managing director, his connection with the business extending over a period of nearly 60 years. Until recently Mr. Finch took an active part in the commercial life of the town and served with ability in the position of chairman of the Plymouth Chamber of Commerce.

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GENERAL.—Cloth dyeing for rubber-proofing. H. L. Hockney and C. W. Bancroft. *Rubber Age*, April, pp. 84–87.

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PHYSICAL.—The coefficient of ionisation of a fused salt. T. M. Lowry. *Nature*, April 16, p. 564.

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The refractive indices of nicotine. J. W. Gifford and T. M. Lowry. *Roy. Soc. Proc. A*, April 1, pp. 592–593.

RUBBER.—Some technical problems in the rubber industry. S. S. Pickles and B. D. Porritt. *Rubber Age*, April, pp. 67–70.

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ANALYSIS.—An accurate method for the determination of phosphorus pentoxide as magnesium ammonium phosphate. W. M. McNabb. *J. Amer. Chem. Soc.*, April, pp. 891–896.

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APPARATUS.—Vacuum oven. Thermoregulator. D. H. Brauns. *J. Amer. Chem. Soc.*, April, pp. 985–986.

COMBUSTION, ETC.—The transfer of heat from combustion gases to surrounding walls. B. Goerg. *Combustion*, April, pp. 214–218.

Studies of combustion in the gasoline engine. I. and II. W. G. Lovell and J. D. Coleman, with T. A. Boyd. *Ind. Eng. Chem.*, March 1, pp. 373–376, 376–378.

GENERAL.—Studies on the permeability of membranes. I. Introduction and the diffusion of ions across the dried collodion membrane. L. Michaelis and W. A. Perlzweig. *J. Gen. Physiol.*, March 20, pp. 575–598.

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The reaction between dichloro-acetic acid and aromatic amines. A. S. Wheeler and E. deW. Jennings. *J. Amer. Chem. Soc.*, April, pp. 1091–1093.

THYROXIN.—Isolation of thyroxin. E. C. Kendall. *J. Biol. Chem.*, March, pp. 213–221.

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Contact catalysis and activation of gases by adsorption. H. S. Taylor and G. Kistiakowsky. *Z. Phys. Chem.*, March 21, pp. 341–362.

ELECTROCHEMISTRY.—The dependence of current yield on the anodic current density in the process of ammonium persulphate formation. O. Essin and E. Krylow. *Z. Elektrochem.*, March, pp. 107–111.

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ORGANIC.—New basic choline derivatives. S. Fränkel and K. Nussbaum. *Biochem. Z.*, March 19, pp. 424–433.

A dodecanediaminodicarboxylic acid from casein. S. Fränkel and M. Friedmann. *Biochem. Z.*, March 19, pp. 434–441.

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ADSORPTION.—Adsorption in salt solutions by manganese dioxide and generalities on the phenomenon. III. Adsorption by colloidal manganese dioxide. M. Geloso. *Ann. Chim.*, January-February, pp. 113–150.

ANALYSIS.—The determination and separation of rare metals from other metals. VIII. The determination of thallium as thallous chromate and its separation from other elements. L. Moser and A. Brukl. *Monatshefte*, February 25, pp. 709–725.

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SOLUBILITY.—The solubility of metallic derivatives of nitrosophenylhydroxylamine. II. A. Pinkus and Martin. *J. Chim. Phys.*, March 25, pp. 137–168.

Contribution to the study of the solubility of calcium phosphates in citric acid. J. Graftian. *Bull. Soc. Chim. Belg.*, February, pp. 165–171.

The solubility of lead sulphate in water and in solutions of some electrolytes. H. Huybrechts and H. Ramelot. *Bull. Soc. Chim. Belg.*, February, pp. 239–260.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

267,386. Lower Boiling Distillates from Higher Boiling Petroleum Hydrocarbons, Production of. A. J. H. Haddan, London. From Gulf Refining Co., Port Arthur, Tex., U.S.A. Application date, July 24, 1926.

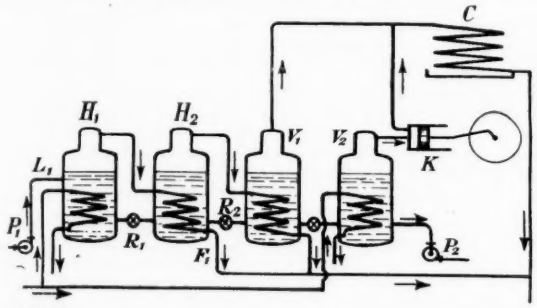
High-boiling petroleum hydrocarbons are distilled with 1–3 per cent. of aluminium chloride with immediate removal of vapours from the still, till at least 75 per cent. of the oil is collected as a distillate, of which at least as much distils between 200° C. and 270° C. as distils below 200° C. About 50–75 per cent. of the distillate is of the nature of gasolene and kerosene, and 25–50 per cent. is of the nature of the original oil.

267,457. New Quinoline Derivatives. W. Carpmael, London. From Farbenindustrie vorm. F. Bayer and Co., Leverkusen, near Cologne, Germany. Application date, September 7, 1925.

6-methoxy-8-nitroquinoline is obtained by heating together *o*-nitro-*p*-anisidine, arsenic acid, glycerine and sulphuric acid. The corresponding ethoxy compound is obtained by treating *o*-nitro-*p*-phenetidine. The amino compounds are obtained by reduction with stannous chloride. These products have antipyretic properties similar to those of the 5-amino-8-ethoxyquinoline.

267,071. Refining Mineral Oils with Liquid Sulphur Dioxide, Process of. Allgemeine Ges. für Chemische Industrie m.b.H., 61–66, Martin Lutherstrasse, Berlin-Schöneberg, Germany. International Convention date, March 5, 1926.

In the refining of mineral oils and hydrocarbons such as distillation products of brown coal tar oils, with liquid sulphur dioxide, the object is to economise in the amount of heat



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necessary in the recovery of the sulphur dioxide. The evaporators V_1, V_2, condensers C, compressor K, and pumps P_1, P_2 operate in the usual manner. Two additional high pressure evaporators H_1 H_2 are employed. The solution of extract and sulphur dioxide passes through the pump P_1 and pipe L_1 to the first evaporator H_1 which is heated by a fire or by steam pipes. The solution is freed from part of the sulphur dioxide and passes through a regulating valve R_1 to the evaporator H_2, which is at a lower pressure. Vapour passes from the evaporator H_1 to a pipe coil in the evaporator H_2, in which liquefaction takes place due to the lower temperature. The liberation of heat causes a corresponding evaporation in the evaporator H_2. The liquid sulphur dioxide passes through a pipe F_1 to a receiver. A similar action takes place in the evaporator V_1, to which the solution from the evaporator H_2 passes through a reducing valve R_2. Vapour from the evaporators V_1, V_2 passes to the condenser C. The vapour from V_1 cannot usually be employed for heating the evaporator V_2, and a steam coil is used to produce the higher temperature necessary.

267,721. Nitric Acid, Manufacture of. C. Toniolo, 15, Via Bigli, Milan, Italy. Application date, March 27, 1926.

Nitric acid has been obtained by absorbing oxides of nitrogen in water at a low temperature in a series of towers. In the last tower the circulating acid is weak so that the cooling cannot be much below zero, while in the preceding towers the cooling may be down to − 25° C. for acid of 65 per cent. strength. In the present process, less cooling is employed, the acid being cooled to about 0° C. in such quantity that on issuing from the towers it may have a temperature of 5°–15° C. This acid is then again cooled to about 0° C. The acid in the end towers, in which there is only a small formation of nitric acid, is only slightly heated, and the heating is progressively greater towards the first tower in which the gases are richer and also warmer. The maximum yield is obtained by admitting the gas and also the acid at the top of the towers. This is less efficient than if the counter-current principle were employed, but much less cooling apparatus is employed, so that the economy is greater.

As an alternative, instead of cooling the acid the gas may be cooled to 0° C. or below. The acid may have any temperature above zero, provided that it is lower than the decomposition temperature of the nitric acid and does not cause distillation from one tower to another. The gas may be cooled by passing it downwards through a tower through which is also passed downwards cold nitric acid of such concentration that it cannot absorb any oxides of nitrogen.

267,768. Concentrated Solutions of Formaldehyde or of Paraformaldehyde, Production of. J. Y. Johnson, London. From I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, June 18, 1926.

When paraformaldehyde is obtained by concentrating dilute formaldehyde solution or by treating it with sulphuric acid, the yield is not good and the product is not readily soluble. It is now found that a good yield of paraformaldehyde in soluble form can be obtained by preparing formaldehyde by the catalytic oxidation of methanol of at least 98 per cent. strength. The resulting vapour is cooled to 50° C. and the condensate fractionated by heating in contact with the uncondensed gases. Formaldehyde of 60 per cent. strength is obtained from which a solid mass of paraformaldehyde is formed after several hours. The paraformaldehyde may be treated in a vacuum evaporator to obtain a dry product. The gases which are not condensed may be treated to form a formaldehyde solution of 30 per cent. strength. By this process 1 kilogram of methanol yields about 800 grams of paraformaldehyde of 60 per cent. strength.

267,788. Titanium Pigments, Process of Producing. E. C. R. Marks, London. From J. Irwin and R. H. Monk, 20–28, St. Paul Street West, Montreal, Canada. Application date, August 6, 1926.

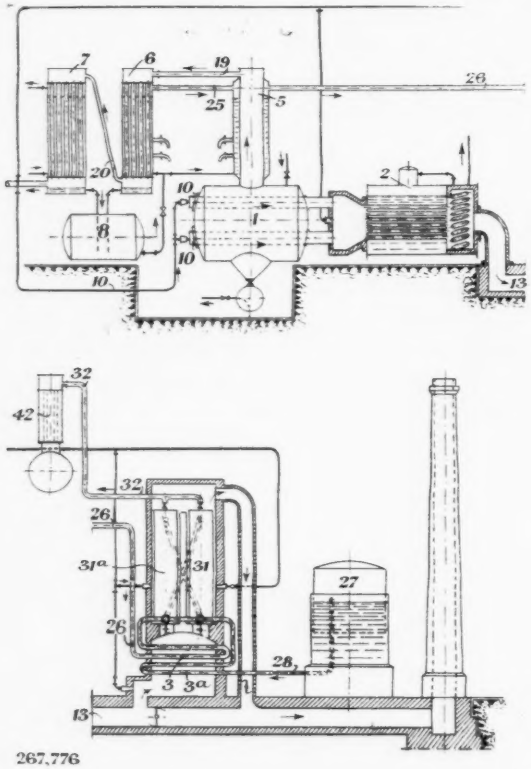
Precipitated titanium oxide compounds are calcined in the presence of 2 to 20 per cent. of carbonaceous material such as charcoal, starch, flour, sugar, sawdust, or oils. The dehydration is effected at 750°–900° C., and the product is of a pure white colour and is free from the higher oxides of titanium.

267,776. Cracking Oils and Tars. Soc. Luxembourgeoise des Hydrocarbures, Soc. Anon., Bascharage, Luxembourg, and F. Brimeyer, 70, Rue St. Zithe, Luxembourg. Application date, July 20, 1926.

The oils and tars are cracked under their own pressure by vaporising them, cracking the vapours, and hydrogenating the products by nascent hydrogen. The oil is cracked in a vessel 1 heated internally by tubes 10 and the vapours pass through a dephlegmator 5 and pipe 19 to a heat exchanger 6, and thence by pipe 20 to heat exchanger 7, which is water cooled. The exchanger 6 is cooled by condensed gases from a collector 8, which receives them from the heat exchangers. The condensed gases also pass to the dephlegmator 5. The heat thus imparted to the condensate evaporates its lighter fractions, which pass through pipes 25, 26 to a superheater coil 3. The vapour then enters the hydrogenating tower 31a containing a metallic mass, where it mixes with sulphuretted hydrogen, and the hydrogenation products then pass through pipe 32 to a condenser 42.

The storage tank 27 contains gases rich in hydrogen which

pass through pipe 28 to a superheater 3a, and thence to a tower 31 containing metallic sulphide at such a temperature that the hydrogen is converted into sulphuretted hydrogen which is then supplied to the tower 31a. The sulphuretted hydrogen reacts with the metal in that tower, liberating nascent hydrogen which combines with the cracked products. The char-



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acteristics of the towers 31, 31a are thus interchanged, and their connections are reversed. The combustion products from the tubes 10 are passed through the heating tubes of a boiler 2, and thence through a passage 13 to the superheaters 3, 3a. The hot gases then pass around the towers 31, 31a, to maintain them at their required temperature.

267,808. Synthetic Rubber, Process for the Removal of Liquid Polymers from. W. Carpmael, London. From I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, September 3, 1926.

In the polymerisation of butadienes with or without substances which accelerate polymerisation, liquid products are also obtained which are injurious during vulcanisation. In this invention, the polymerisation product obtained by heating isoprene is rolled into sheets and then covered with active charcoal and heated to 40°–50° C. for several hours. The charcoal is then removed mechanically or by washing, and the polymerisation product is then free from liquid polymers.

Note.—Abstracts of the following specifications which are now accepted, appeared in The Chemical Age when they became open to inspection under the International Convention :—240,165 (P. Gredt), relating to smelting oolitic ores and slimes, see Vol. XIII, p. 47 (Metallurgical Section) ; 245,422 (Molybdenum Corporation of America), relating to compositions for alloying molybdenum with other metals, see Vol. XIV, p. 23 (Metallurgical Section) ; 249,489 (Soc. of Chemical Industry in Basle), relating to intermediate products and dyestuffs of the anthraquinone and anthracene series, see Vol. XIV, p. 550 ; 252,029 (I. G. Farbenindustrie Akt.-Ges.), relating to condensation products of the anthraquinone series, see Vol. XV, p. 88 ; 252,367 (I. G. Farbenindustrie Akt.-Ges.), relating to utilisation of residue obtained in the reduction of molten crude phosphates, see Vol. XV, p. 141 ; 252,679 (F. Krupp Grusonwerk Akt.-Ges.), relating to working up ores and products containing volatilisable metals, see Vol. XV, p. 142 ; 254,679 (I. G. Farbenindustrie Akt.-Ges.), relating to manufacture of articles from molten carbon, see Vol. XV, p. 257 ; 256,601 (F. Krupp Grusonwerk Akt.-Ges.), relating to extraction of lead and zinc from ores, etc., see Vol. XV, p. 39 (Metallurgical Section) ; 257,622 (Consortium für Elektro-Chemische Industrie Ges.), relating to acetals, see Vol. XV, p. 456 ; 260,288 (Soc. of Chemical Industry in Basle), relating to aldehyde condensation products, see Vol. XVI, p. 29.

International Specifications not yet Accepted

265,959. Dicarboxylic Acids. J. D. Riedel Akt.-Ges., 1, Riedelstrasse, Britz, Berlin. International Convention date, February 12, 1926.

Cyclohexanol, cyclohexanone, or their alkyl derivatives are oxidised with nitric or chromic acid in the presence of oxygen transferrors such as oxides or salts of mercury, molybdenum, or vanadium, to obtain adipic acid or its alkyl derivatives. Examples are given of the production of adipic acids and methyladipic acid by various methods.

265,960. Amines. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, February 9, 1926.

Hydrogen and ammonia react with aldehydes or ketones or their ammonia compounds in the vapour phase and in presence of a hydrogenation catalyst to produce aliphatic and cyclic primary amines. An activating material or dehydration catalyst such as aluminium phosphate or alumina may also be present. By passing the vapour of the starting material mixed with hydrogen and ammonia over a heated nickel catalyst, cyclohexanone is converted into cyclohexylamine, *n*-butylaldehyde into *n*-butylamine, isobutylaldehyde and its ammonia compound into isobutylamine, propylaldehyde into propylamine, acetone into isopropylamine, isovaleraldehyde into isoamylamine, and isocapronicaldehyde into isohexylamine. The nickel catalyst is obtained by depositing basic nickel carbonate and water glass on granulated pumice and reducing with hydrogen.

265,964. Dyes. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, February 9, 1926. Addition to 237,294 and 265,232.

Specifications 237,294 and 265,232 (see The Chemical Age, Vol. XIII, p. 333 and Vol. XVI, p. 381) describe dyestuffs obtained by condensing naphthalene-1 : 4 : 5 : 8-tetracarboxylic acid or its anhydride with an *o*-diamine. These can also be obtained by heating the primary condensation products obtained by condensing the acid or its anhydride with an *o*-diamine in a low-boiling solvent such as alcohol. The products can be heated alone, or in a high-boiling solvent.

265,984. Separating Benzol from Coal or Coke Oven Gas. Naamlooze Vennootschap Silica en Ovenbouw Maatschappij, 17, Raamweg, The Hague. (Assignees of Dr. C. Otto and Co. Ges., Dahlhausen, Ruhr, Germany.) International Convention date, February 12, 1926.

Gas is washed with an oil which is subjected to vacuum distillation, and the vapours of benzol carried away by the exhaust gases from the vacuum pump are recovered.

265,993. Cyanides. Naamlooze Vennootschap Nederlandsche Mijnbouw en Handel Maatschappij, 410, Heerengracht, Amsterdam. International Convention date, February 12, 1926.

A mixture of an alkali or alkaline earth salt and carbonaceous material such as coal, brown coal, peat, bitumen, sawdust, maize or rice straw, asphalte or petroleum distillation residues, with or without a catalyst is heated in thin layers in internally-heated rotary drums having low ledges to prevent the charge falling downwards as the drums revolve. Acid-free tar is obtained, and a coked mass suitable for the production of cyanides.

265,994. Carbon Bisulphide. J. and A. Komlos and E. F. Engelke, 18, Arany Janos utca, Budapest. (Assignees of A. von Vajdaffy, 126, Arena ut, Budapest.) International Convention date, February 15, 1926.

Sulphur or metallic sulphides are treated with hydrocarbons of the acetylene series, with or without contact substances to obtain carbon bisulphide and sulphuretted hydrogen. If nitrogen or ammonia is present, hydrogen cyanide may be obtained. Hydrocarbons of high molecular weight, or their sulphur derivatives may also be obtained.

266,007. Sulphur Trioxide. Monsanto Chemical Works, St. Louis, Mo., U.S.A. (Assignees of A. O. Jaegar and J. A. Bertsch, 4901, West Pine Street, St. Louis, Mo., U.S.A.) International Convention date, February 15, 1926.

Sulphur dioxide is oxidised by using as catalysts artificial zeolites containing pentavalent vanadium in non-exchangeable form. Inert materials may be present, such as pumice, magnesia, or metal alloys. Binders may be present, such as alkali or alkaline earth sulphates, phosphates, chlorides or nitrates, or sodium silicate, if the amount of zeolite is insufficient. Alternatively, the set zeolites may be finely ground and applied to coarse granular carriers, which may be catalysts such as titanium dioxide, ilmenite, titaniferous iron ore, bauxite, oxides of chromium, copper, nickel, cobalt, barium, metals such as manganese, chromium, ferro-chromium, ferro-vanadium, silicon-manganese-iron, aluminium-manganese-iron, ferro-manganese, ferro-titanium, ferro-tungsten, ferro-nickel. Thus, ammonium vanadate may be heated with caustic soda, and the solution neutralised with hydrochloric acid and diluted. Sodium silicate solution is added, and the mixture stirred and warmed, with small additions of dilute hydrochloric or other acid. A granular precipitate is obtained, which is dried below 100° C., and is used in the production of sulphur trioxide at 430°-450° C. Other mixtures are also described.

Latest Notifications.

268,728. Absolute alcohol process. U. S. Industrial Alcohol Co. March 30, 1926.

268,737. Process for the manufacture of magnesium. Jessup, A. C. March 30, 1926.

268,738. Process for the electrolytic production of metals, and, in particular, of magnesium. Jessup, A. C. March 30, 1926.

268,745. Process and apparatus for low-temperature distillation. Bamag-Meguin Akt.-Ges., and Heller, Dr. O. April 1, 1926.

268,749. Butyl-acetonic fermentation process. Commercial Solvents Corporation. April 3, 1926.

268,754. Metallic compounds of *o*-hydroxy-azo dyestuffs. I. G. Farbenindustrie Akt.-Ges. March 31, 1926.

268,770. Fining iron. I. G. Farbenindustrie Akt.-Ges. April 1, 1926.

268,774. Production of conversion products of tars, mineral oils, and the like. I. G. Farbenindustrie Akt.-Ges. March 30, 1926.

268,775. Manufacture and production of decomposition products of organic compounds. I. G. Farbenindustrie Akt.-Ges. April 3, 1926.

268,778. Process for the recovery of high-percentage acetic acid from solutions of acetyl cellulose in acetic acid. Verein für Chemische Industrie Akt.-Ges. April 1, 1926.

268,779. Process for manufacturing pure white and finely-distributed sulphate of barium and sulphate of calcium. Lichtenberger, T., and Kaiser, Dr. L. April 3, 1926.

268,789. Manufacture of diazotised amines of the cyclic series. I. G. Farbenindustrie Akt.-Ges. March 30, 1926.

268,796. Conversion of hydrocarbons of high boiling-point into compounds of lower boiling-point. I. G. Farbenindustrie Akt.-Ges. April 1, 1926.

268,804. Process for hardening plastic masses from casein and the like. I. G. Farbenindustrie Akt.-Ges. March 31, 1926.

268,807. Manufacture of azo-dyestuffs. I. G. Farbenindustrie Akt.-Ges. March 31, 1926.

268,817. Manufacture of alkali bisulphate. I. G. Farbenindustrie Akt.-Ges. April 1, 1926.

268,830. Manufacture of benzanthrones. I. G. Farbenindustrie Akt.-Ges. April 3, 1926.

Specifications Accepted with Date of Application

240,840 and 266,389. Treatment of condensation products of carbamide or its derivatives with formaldehyde, Process for. F. Pollak. October 1, 1924.

245,759. Increasing the affinity of animal fibres for dyestuffs, Process for. Chemical Works (formerly Sandoz). January 6, 1925.

245,792. Steel alloys. Poldihutte (Firm of). January 8, 1925.

246,834. Phenol aldehyde resins, Production of. Bakelite Ges. January 27, 1925.

247,227. Ammonium nitrate in water solution and simultaneous concentration thereof, Manufacture of. Azogeno Soc. Anon. per la Fabbricazione Dell'Ammoniaca Sintetica E. Prodotti Derivati and C. Toniolo. February 7, 1925.

247,228. Ammonium nitrate solutions, Process for rapid evaporation to dryness. Azogeno Soc. Anon. per la Fabbricazione Dell'-Ammoniaca Sintetica E. Prodotti Derivati, and C. Tonioli. February 7, 1925.

252,017. Iron and other carbon-binding metals and alloys thereof having a very low percentage of carbon, Process of producing. H. G. E. Cornelius. May 11, 1925.

252,018. Liquid fuel, Manufacture and production of. I. G. Farbenindustrie Akt.-Ges. May 8, 1925. Addition to 226,731.

255,042. Anhydrous chloride of magnesium, Process for the manufacture of. Compagnie de Produits Chimiques et Electro-Metallurgiques Alais, Froges, et Camargue. July 8, 1925.

255,482. Zinc, Production of. F. Krupp Grusonwerk Akt.-Ges. July 20, 1925.

259,201. Regeneration of catalysts used in the production of phosphorus pentoxide or phosphoric acid by the interaction of phosphorus or phosphoretted hydrogen and water vapour, Process for. I. G. Farbenindustrie Akt.-Ges. September 29, 1925.

260,568. Dinitro products of perylene and its halogen derivatives, Manufacture of. F. Bensa. October 28, 1925.

268,420. Concentrated solutions of alkali cyanides, Process for the production of. Deutsche Gold- und Silber Scheideanstalt vorm. Roessler and K. Andrich. December 23, 1925.

268,426. High pressure system for electrolytic processes, more especially for the production of hydrogen and oxygen. J. E. Noeggerath. December 30, 1925.

268,542. Anthraquinone dyestuffs. British Dyestuffs Corporation, Ltd., and W. W. Tatum. March 19, 1926.

268,552. Cellulose derivatives, Manufacture of. Courtaulds, Ltd., W. H. Glover, and C. Diamond. April 10, 1926.

268,599. Granular materials, Process for heating. J. Y. Johnson. (*I. G. Farbenindustrie Akt.-Ges.*) June 21, 1926.

268,616. Steel, Manufacture of, and treatment of same for the manufacture of edge tools. A. E. G. T. von Vegesack. July 24, 1926.

268,654. Copper-aluminium alloys. Metallbank und Metallurgische Ges. Akt.-Ges. April 15, 1926.

268,043. Separation of minerals and other substances. T. M. Davidson. September 21, 1925.

268,080. Distillation of coal and other carbonaceous substances. E. R. Sutcliffe. September 28, 1925.

Applications for Patents

British Celanese, Ltd., and Welch, S. A. Manufacture of artificial silk, etc. 9,175. April 4.

British Celanese, Ltd., and Welch, S. A. Treatment of yarn packages with liquids. 9,683. April 8. (United States, April 12, 1926.)

British Celanese, Ltd., and Welch, S. A. Manufacture of cellulose derivatives, etc. 9,684, 9,685. April 8. (United States, April 14, 1926.)

British Celanese, Ltd., and Welch, S. A. Manufacture of cellulose derivatives, etc. 9,686. April 8. (United States, April 16, 1926.)

British Dyestuffs Corporation, Ltd., Bunbury, H. M., Shepherdson, A., and Tatum, W. W. Production of anthraquinone intermediates. 9,388. April 5. (January 11, 1926.)

British Glues and Chemicals, Ltd., and Drew, R. B. Mixing colloidal substances with oil. 9,607. April 7.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Production of dyeings on fibres. 9,526. April 6.

Chemisch-Pharmazeutische Akt.-Ges. Bad Homburg. Manufacture of quinine solutions. 9,246. April 4.

Du Pont, E., Du Pont, F. I., and U. S. F. Powder Co. Explosives. 9,617. April 7.

Hofmann, F., and Otto, M. Process for polymerisation of olefines. 9,737. April 8.

I. G. Farbenindustrie Akt.-Ges. and Mond, A. L. Production of anhydrous chlorides free from oxides. 9,494. April 6.

I. G. Farbenindustrie Akt.-Ges. and Mond, A. L. Production of dyeings on fibres. 9,526. April 6.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of coloured cellulose plastics. 9,715. April 8.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Treatment of montan wax. 9,716. April 8.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of products from montan wax. 9,717. April 8.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of plasters, etc. 9,818. April 9.

I. G. Farbenindustrie Akt.-Ges. Manufacture of vat dyestuffs. 9,471. April 6. (Germany, November 18, 1926.)

I. G. Farbenindustrie Akt.-Ges. Production of liquid hydrocarbons. 9,196. April 4. (Germany, April 14, 1926.)

I. G. Farbenindustrie Akt.-Ges. Production of dyestuffs containing chromium. 9,197. April 4. (Germany, April 15, 1926.)

I. G. Farbenindustrie Akt.-Ges. Manufacture of benzanthrones. 9,214. April 4. (Germany, April 3, 1926.)

Imray, O. Y., Kirkham, V. H., and Raymond, L. W. Manufacture of alkaline earth and magnesium salts of eugenol, etc. 9,535. April 6.

Mallabar, H. J., and Non-Inflammable Film Co., Ltd. Manufacture of cellulose acetate. 9,418. April 6.

Rheinische Kampfer-Fabrik Ges. Production of inactive menthol. 9,230. April 4. (Germany, February 15.)

Synthetic Ammonia and Nitrates, Ltd. Carrying out chemical reactions. 9,421. April 6.

Thorn, I. Condensation products. 9,829. April 9.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £34 per ton; powder, £36 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 5d. to 2s. 10d. per gall.; pyridinised industrial, 2s. 7d. to 3s. per gall.; mineralised, 3s. 6d. to 3s. 10d. per gall.; 64 O.P., 1d. extra in all cases; prices according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3¾d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton for home market, 1-cwt. drums included.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—8½d. to 9d. per lb. Crude 60's, 2s. 6d. to 2s. 8d. per gall.

ACID CRESYLIC 99/100.—2s. 6d. to 2s. 8d. per gall. Steady. 97/99.—2s. 1½d. to 2s. 3d. per gall. Pale, 95%, 2s. to 2s. 1½d. per gall. Dark, 1s. 9d. to 1s. 10d. per gall.

ANTHRACENE.—A quality, 2½d. to 3d. per unit. 40%, 3d. per unit.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.; both according to gravity.

BENZOLE.—Crude 65's, 1s. 0¾d. to 1s. 1¾d. per gall., ex works in tank wagons. Standard Motor, 1s. 9d. to 2s. 2d. per gall., ex works in tank wagons. Pure, 2s. to 2s. 3d. per gall., ex works in tank wagons.

TOLUOLE.—90%, 1s. 9½d. to 2s. 2d. per gall. Firm. Pure, 2s. 1d. to 2s. 4d. per gall.

XYLOL.—2s. 1d. to 2s. 6d. per gall. Pure, 3s. per gall.

CREOSOTE.—Cresylic, 20/24%, 10½d. per gall. Standard specification, 6¾d. to 9d.; middle oil, 7½d. to 8d. per gall. Heavy, 8½d. to 9d. per gall. Salty, 7d. per gall. less 1½%.

NAPHTHA.—Crude, 8d. to 9d. per gall. according to quality. Solvent 90/160, 1s. 10d. to 1s. 11d. per gall. Solvent 95/160, 1s. 7d. to 1s. 8d. per gall. Solvent 90/190, 1s. 1½d. to 1s. 4d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £8 per ton. Whizzed or hot pressed, £8 10s. to £9 per ton.

NAPHTHALENE.—Crystals, £11 10s. to £13 10s. per ton. Quiet. Flaked, £12 10s. per ton, according to districts.

PITCH.—Medium soft, 75s. to 85s. per ton, according to district; nominal.

PYRIDINE.—90/140, 9s. 6d. to 13s. per gall. Nominal. 90/180, 5s. per gall. Heavy, 5s. to 8s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—4s. 9d. per lb.

ACID H.—3s. 3d. per lb. 100% basis d/d.

ACID NAPHTHIONIC.—1s. 6d. per lb. 100% basis d/d.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100% basis d/d.

ACID SULPHANILIC.—9d. per lb. 100% basis d/d.

ANILINE OIL.—7d. per lb. naked at works.

ANILINE SALTS.—7d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—4d. per lb. Fair inquiry.

m-CRESOL 98/100%.—2s. 8¾d. per lb. Only limited inquiry.

p-CRESOL 32/34° C.—2s. 8¾d. per lb. Only limited inquiry.

DICHLORANILINE.—2s. 3d. per lb.

DIMETHYLANILINE.—2s. per lb. d/d. Drums extra.

DINITROBENZENE.—9d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—11d. to 1s. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb. d/d.

B-NAPHTHYLAMINE.—3s. per lb. d/d.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 9d. per lb. d/d.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb. d/d.

R. SALT.—2s. 2d. per lb. 100% basis d/d.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—7½d. to 8d. per lb. naked at works.

p-TOLUIDINE.—2s. 2d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 5s. per ton. Grey, £15 10s. per ton. Liquor, 9d. per gall. 32° Tw.

CHARCOAL.—£6 15s. to £10 per ton, according to grade and locality.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 1s. per gall. 16° Tw.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—4s. to 4s. 3d. per gall., 60% O.P. Solvent, 4s. 3d. per gall., 40% O.P.

WOOD TAR.—£4 to £5 10s. per ton and upwards, according to grade.

BROWN SUGAR OF LEAD.—£40 10s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5¾d. to 6¾d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.

ZINC SULPHIDE.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 5d. to 2s. 6d. per lb. Firm and brisk.

ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. per oz.; 500 oz. lots, 1s. per oz.

ACID, BORIC B.P.—Crystal, £41 per ton; powder, £45 per ton. Carriage paid any station in Great Britain, in ton lots.

ACID, CAMPHORIC.—19s. to 21s. per lb.

ACID, CITRIC.—1s. 5½d. per lb., less 5%. Firm.

ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.

ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.

ACID, SALICYLIC, B.P.—1s. 3½d. to 1s. 4½d. per lb. Technical.—11¼d. to 1s. per lb. Both in good demand.

ACID, TANNIC B.P.—2s. 9d. to 2s. 11d. per lb.

ACID, TARTARIC.—1s. 2½d. per lb., less 5%. Firm market.

AMIDOL.—9s. per lb., d/d.

ACETANILIDE.—1s. 6d. to 1s. 8d. per lb. for quantities.

AMIDOPYRIN.—8s 6d. per lb.

AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity.

AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated: lump, 1s. per lb.; powder, 1s. 3d. per lb.

ATROPINE SULPHATE.—11s. per oz. for English make.

BARBITONE.—6s. 6d. per lb.

BENZONAPHTHOL.—3s. 3d. per lb. spot.

BISMUTH CARBONATE.—9s. 9d. to 10s. per lb.

BISMUTH CITRATE.—9s. 6d. to 9s. 9d. per lb.

BISMUTH SALICYLATE.—8s. 9d. to 9s. per lb.

BISMUTH SUBNITRATE.—7s. 9d. to 8s. per lb.

BISMUTH NITRATE.—5s. 9d. to 6s. per lb.

BISMUTH OXIDE.—13s. 9d. to 14s. per lb.

BISMUTH SUBCHLORIDE.—11s. 9d. to 12s. per lb.

BISMUTH SUBGALLATE.—7s. 9d. to 8s. per lb. Extra and reduced prices for smaller and larger quantities respectively; Liquor Bismuthi B.P. in W. Qts. 1s. 1d. per lb.; 12 W. Qts. 1s. per lb.; 36 W. Qts. 11¼d. per lb.

BORAX B.P.—Crystal, £24 per ton; powder, £25 per ton. Carriage paid any station in Great Britain, in ton lots.

BROMIDES.—Potassium, 1s. 11d. to 2s. 1d. per lb.; sodium, 2s. 2d. to 2s. 4d. per lb.; ammonium, 2s. 4d. to 2s. 6d. per lb., all spot.

CALCIUM LACTATE.—1s. 3½d. to 1s. 4½d.

CHLORAL HYDRATE.—3s. 2d. to 3s. 5d. per lb., duty paid.

CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.

CREOSOTE CARBONATE.—6s. per lb.

ETHER METH.—1s. 1d. to 1s. 11½d. per lb., according to sp. gr. and quantity. Ether purif. (Aether B.P., 1914), 2s. 3d. to 2s. 4d., according to quantity.

FORMALDEHYDE.—£39 per ton, in barrels ex wharf.

GUAIACOL CARBONATE.—5s. per lb.

HEXAMINE.—2s. 4d. to 2s. 6d. per lb.

HOMATROPINE HYDROBROMIDE.—30s. per oz.

HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.

HYDROGEN PEROXIDE (12 VOLS.).—1s. 5d. per gallon f.o.r. makers' works, naked.

HYDROQUINONE.—4s. per lb., in cwt. lots.

HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.

IRON AMMONIUM CITRATE B.P.—2s. 1d. to 2s. 4d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.

IRON PERCHLORIDE.—22s. per cwt., 112 lb. lots.

MAGNESIUM CARBONATE.—Light Commercial, £33 per ton net.

MAGNESIUM OXIDE.—Light commercial, £67 10s. per ton, less 2½%; Heavy Commercial, £22 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.

MENTHOL.—A.B.R. recrystallised B.P., 18s. 9d. per lb. net; Synthetic, 11s. to 12s. per lb., according to quantity; 10s. 6d. for 1 cwt. lots and upwards; Liquid (95%), 12s. per lb.; Detached Cryst., 14s. 6d. per lb.

MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10d. to 5s. 11d. per lb. Special prices for larger quantities.

METHYL SALICYLATE.—1s. 9d. per lb.

METHYL SULPHONAL.—11s. per lb.

METOL.—11s. per lb. British make.

PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.

PARALDEHYDE.—1s. 4d. per lb.

PHENACETIN.—3s. per lb.

PHENAZONE.—4s. 6d. per lb.

PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.

POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—96s. per cwt. less 2½% for ton lots.

POTASSIUM CITRATE.—1s. 11d. to 2s. 2d. per lb.

POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.

POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb. for 1 cwt. lots.

POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.

POTASSIUM PERMANGANATE.—B.P. crystals, 6d. per lb., spot.

QUININE SULPHATE.—2s. per oz., 1s. 8d. to 1s. 9d. for 1000 oz. lots in 100 oz. tins.

RESORCIN.—4s. per lb., spot.

SACCHARIN.—55s. per lb. Very limited inquiry.

SALOL.—2s. 4d. per lb.

SODIUM BENZOATE, B.P.—1s. 10d. to 2s. 2d. per lb.

SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb., B.P.C., 1923—2s. to 2s. 1d. per lb. for 1 cwt. lots. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.

SODIUM FERROCYANIDE.—4d. per lb., carriage paid.

SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.

SODIUM NITROPRUSSIDE.—16s. per lb.

SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—90s. per cwt. Crystals, 5s. per cwt. extra.

SODIUM SALICYLATE.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 1s. 11d. per lb.

SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.

SODIUM SULPHITE, ANHYDROUS, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.

SULPHONAL.—7s. 6d. per lb.

TARTAR EMETIC, B.P.—Crystal or powder, 2s. 1d. to 2s. 2d. per lb.

THYMOL.—Puriss., 11s. 6d. to 12s. per lb., according to quantity. Firmer. Natural, 14s. 9d. per lb. Cheaper.

Perfumery Chemicals

ACETOPHENONE.—7s. 3d. per lb.

AUBEPINE (EX ANETHOL), 10s. 6d. per lb.

AMYL ACETATE.—2s. per lb.

AMYL BUTYRATE.—5s. 3d. per lb.

AMYL SALICYLATE.—3s. per lb.

ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb.

BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. per lb.

BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb.

BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.

BENZYL BENZOATE.—2s. 3d. per lb.

CINNAMIC ALDEHYDE NATURAL.—17s. per lb.

COUMARIN.—10s. 6d. per lb.

CITRONELLOL.—14s. 6d. per lb.

CITRAL.—8s. 3d. per lb.

ETHYL CINNAMATE.—10s. per lb.

ETHYL PHTHALATE.—3s. per lb.

EUGENOL.—9s. 6d. per lb.

GERANIOL (PALMAROSA).—17s. 6d. per lb.

GERANIOL.—6s. 6d. to 10s. per lb.

HELIOTROPINE.—4s. 9d. per lb.

ISO EUGENOL.—13s. 6d. per lb.

LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.

LINALYL ACETATE.—Ex Bois de Rose, 18s. per lb. Ex Shui Oil, 14s. 6d. per lb.

METHYL ANTHRANILATE.—8s. 6d. per lb.

METHYL BENZOATE.—4s. 6d. per lb.

MUSK KETONE.—35s. per lb.

MUSK XYLOL.—8s. 6d. per lb.

NEROLIN.—3s. 9d. per lb.

PHENYL ETHYL ACETATE.—10s. 6d. per lb.

PHENYL ETHYL ALCOHOL.—11s. per lb.

RHODINOL.—27s. 6d. per lb.

SAFROL.—1s. 6d. per lb.

TERPINEOL.—1s. 6d. per lb.

VANILLIN.—18s. 6d. per lb. Good demand.

Essential Oils

ALMOND OIL.—11s. per lb.

ANISE OIL.—3s. 1d. per lb.

BERGAMOT OIL.—30s. per lb.

BOURBON GERANIUM OIL.—12s. per lb.

CAMPHOR OIL.—67s. 6d. per cwt.

CANANGA OIL, JAVA.—26s. per lb.

CINNAMON OIL LEAF.—6d. per oz.

CASSIA OIL, 80/85%.—8s. 6d. per lb.

CITRONELLA OIL.—Java, 85/90%, 2s. 3d. per lb. Ceylon, pure, 1s. 10d. per lb.

CLOVE OIL.—6s. per lb.

EUCALYPTUS OIL, 70/75%.—2s. per lb.

LAVENDER OIL.—Mont Blanc, 38/40%, Esters, 21s. per lb.

LEMON OIL.—10s. per lb.

LEMONGRASS OIL.—4s. 6d. per lb.

ORANGE OIL, SWEET.—10s. 6d. per lb.

OTTO OF ROSE OIL.—Anatolian, 30s. per oz. Bulgarian, 70s. per oz.

PALMA ROSA OIL.—9s. 6d. per lb.

PEPPERMINT OIL.—Wayne County, 18s. 9d. per lb. Japanese, 8s. 6d. per lb. Firm.

PETITGRAIN OIL.—7s. 9d. per lb.

SANDALWOOD OIL.—Mysore, 26s. 6d. per lb.; 90/95%, 16s. 6d. per lb

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.*

Glasgow, April 20, 1927.

THE Easter Holiday has somewhat interfered with business in the heavy chemical market since our last report, but inquiry received during the beginning of the present week has been good. There are no important changes in prices to record.

Industrial Chemicals

ACID ACETIC.—98/100%, £55 to £67 per ton according to quantity and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystal, granulated or small flakes, £34 per ton; powder, £36 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Price further advanced to about 8½d. per lb., f.o.b. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—Now quoted 1s. 4½d. per lb., less 5%, ex store for continental material; British on offer at 1s. 5½d. per lb., less 5%, f.o.b. U.K. ports.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. 9d. per carboy. Dearsenicated quality, 6s. 3d. per carboy, ex works.

ACID NITRIC, 80°.—Quoted £23 5s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—Still in good demand. Price about 2¾d. per lb., c.i.f. U.K. ports.

ACID SULPHURIC, 144°.—£3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC B.P. CRYSTALS.—Quoted 1s. 2½d. per lb., less 5%, ex wharf, prompt shipment. Spot material offered at about 1s. 2¾d. per lb., less 5%, ex store.

ALUMINA SULPHATE, 17/18% IRON FREE.—Spot material quoted £5 12s. 6d. per ton, ex store. On offer for early delivery at £5 5s. per ton, c.i.f. U.K. ports.

ALUM POTASH.—Lump quality quoted £8 per ton, c.i.f. U.K. ports. Crystal powder, 5s. per ton less. Lump on spot, £9 per ton. Crystal powder, £8 10s. per ton, ex store.

AMMONIA ANHYDROUS.—On offer at 9¾d. per lb., ex store. Containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers crystals of English manufacture unchanged at about £23 to £24 per ton, ex station. Continental on offer at about £20 10s. per ton, c.i.f. U.K. ports. Fine white crystals quoted £18 5s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Spot material unchanged at about £19 5s. per ton, ex store. Offered for prompt despatch from mines at £18 per ton, ex wharf.

BARIUM CARBONATE, 98/100%.—White powdered quality quoted £6 15s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals on offer from the Continent at £7 12s. 6d. per ton, c.i.f. U.K. ports, packed in casks. Bags, 5s. per ton less. Spot material quoted £9 5s. per ton, ex store.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—Contract price to consumers £8 per ton, ex station, minimum 4-ton lots. Spot material, 10s. per ton extra. Continental now quoted £7 10s. per ton, c.i.f. U.K. ports.

BORAX.—Granulated, £19 10s. per ton; crystals, £20 per ton; powder, £21 per ton, carriage paid U.K. ports.

CALICUM CHLORIDE.—English manufacturers' prices, £5 to £5 5s. per ton, ex station. Continental on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or £4 12s. 6d. per ton, f.o.b. U.K. ports, for export.

COPPER SULPHATE.—Spot material of English manufacture on offer at about £24 per ton, ex store. Continental quoted £24 per ton, c.i.f. U.K. ports.

FORMALDEHYDE, 40%.—Now offered from the Continent at £38 per ton, c.i.f. U.K. ports. Spot material available at £39 10s. per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental now £2 17s. 6d. per ton, c.i.f. U.K. ports.

LEAD ACETATE.—White crystals quoted £42 15s. per ton, c.i.f. U.K. ports; brown, about £40 5s. per ton, c.i.f. U.K. ports; white crystals on spot quoted £44 5s. per ton, ex store.

LEAD, RED.—Imported material on offer at £33 per ton, ex store.

LEAD, WHITE.—Quoted £33 5s. per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store. In moderate demand.

MAGNESIUM CHLORIDE.—Quoted £6 6s. 6d. per ton, c.i.f. U.K. ports.

POTASH CAUSTIC, 88/92%.—Solid quality quoted £28 15s. per ton, c.i.f. U.K. ports, minimum 15-ton lots. Under 15-ton lots, £29 10s. per ton. Liquid, £15 per ton, minimum 15-ton lots. Under 15-ton lots, £15 7s. 6d. per ton, c.i.f. U.K. ports.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE, 96/98%.—Now quoted £27 5s. per ton, ex wharf, early shipment. Spot material on offer at about £28 10s. per ton, ex store.

POTASSIUM CHLORATE.—Powdered quality now quoted £24 10s. per ton, c.i.f. U.K. ports. Crystal, £2 per ton extra.

POTASSIUM NITRATE.—Spot material on offer at £22 10s. per ton, ex store. Offered for prompt shipment from the Continent at about £21 per ton, c.i.f. U.K. ports.

POTASSIUM PERMANCANATE, B.P. CRYSTALS.—Quoted 6½d. per lb., ex store, spot delivery.

POTASSIUM PRUSSIATE (YELLOW).—In good demand, and price unchanged at about 7½d. per lb., ex store, spot delivery. Offered from the Continent at 7¼d. per lb., c.i.f. U.K. ports.

SODA CAUSTIC.—Powder, 98/99%, £19 7s. 6d. per ton; 76/77%, £15 10s. per ton; 70/72%, £14 10s. per ton, carriage paid station, minimum 4-ton lots on contract. Spot material 10s. per ton extra.

SODIUM ACETATE.—English material quoted £22 10s. per ton, ex store. Continental on offer at about £19 per ton, c.i.f. U.K. ports.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. N.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3¾d. per lb., delivered buyers' works.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powder or pea quality, £1 7s. 6d. per ton more; alkali, 58%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 10s. per ton, ex station, minimum 4-ton lots. Continental on offer at about £8 2s. 6d. per ton, ex wharf, prompt shipment. Pea crystals, photographic quality of British manufacture, quoted £14 10s. per ton, ex station.

SODIUM NITRATE.—Ordinary quality quoted £13 per ton, ex store. Refined quality 5s. per ton extra.

SODIUM NITRITE, 100%.—Spot material now quoted £20 5s. per ton, ex store.

SODIUM PRUSSIATE (YELLOW).—Offered for prompt shipment from the Continent at 4⅝d. per lb., ex wharf. Spot material on offer at 4¾d. per lb., ex store.

SODIUM SULPHATE (SALTCAKE).—Price for home consumption, £3 7s. 6d. per ton, ex works.

SODIUM SULPHIDE.—60/65%, solid, £11 10s. per ton; broken, £12 10s. per ton; cakes, £12 10s. per ton; flake, £14 5s. per ton; crystals, 31/34%, £7 15s. to £8 10s. per ton, according to quality, delivered buyers' works, minimum 4-ton lots on contract. Prices for spot delivered are 5s. and 2s. 6d. per ton extra for solid and crystals respectively. Offered from the Continent at about £9 7s. 6d. per ton, c.i.f. U.K. ports; broken, 15s. per ton extra.

SULPHUR.—Flowers, £12 10s. per ton; roll, £11 10s. per ton; rock, £11 10s. per ton; floristella, £10 10s. per ton; ground American, £9 5s. per ton, ex store. Prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100%, solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports; powdered 20s. per ton extra.

ZINC SULPHATE.—Continental material on offer at about £10 10s. per ton, ex wharf.

NOTE.—The above prices are for bulk business, and are not to be taken as applicable to small parcels.

THE PRODUCTION OF BAUXITE in the United States in 1926 was 392,250 long tons, valued at $2,415,200, an increase of 24 per cent. in quality and 21 per cent. in value as compared with the domestic production of 316,540 long tons, valued at $1,988,250, in 1925, according to a statement prepared by James M. Hill, of the Bureau of Mines, Department of Commerce. Imports of bauxite in 1926 amounted to 281,644 long tons, valued at $1,187,497 (an average of $4·22 a ton), a decrease of 20 per cent. in quantity as compared with imports in 1925. Exports of bauxite, including bauxite concentrates (alumina), in 1926 totalled 87,770 tons, valued at $4,741,260 ($54·02 a ton), an increase of 12 per cent. in quantity as compared with exports in 1925. Exports were largely to Canadian and Norwegian aluminium plants.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, April 21, 1927.

Business in chemicals on the Manchester market during the past week has been on a quieter scale than it was a fortnight ago, although holiday influences, which still obtain to some extent, are partly responsible for this. Except in the case of some of the leading "heavies," buying interest this week has been limited, although there is still fairly active inquiry.

Heavy Chemicals

In the case of hyposulphite of soda there is only a quiet business passing, but prices are steady, with photographic material quoted at £15 10s. per ton and commercial grade at about £9 10s. The demand for phosphate of soda also is of limited extent, with current offers of this at £12 12s. 6d. per ton. Bicarbonate of soda continues firm and is unchanged on the week at about £10 10s. per ton, with sales on a fair scale. Caustic soda has been in quietly steady request and there is no alteration in the price situation, current values ranging from £14 10s. to £16 10s. per ton according to quality. Bleaching powder meets with some inquiry and values remain at round £8 per ton. Prussiate of soda is fully maintained at about 4¼d. per lb., but the demand this week has been on quiet lines. Sulphide of sodium is fairly steady although business is rather slow; 60-65 per cent. concentrated solid is offered at about £11 per ton and commercial quality at £8 7s. 6d. So far as saltcake and glauber salts are concerned, the demand for these is slow; quotations, however, are about held at £3 10s. to £3 15s. and £3 2s. 6d. per ton, respectively. Alkali keeps firm at round £6 15s. per ton and inquiry for this continues on a fairly satisfactory scale. The call both for chlorate and bichromate of soda during the week has been of little moment, and in each case offers are in the neighbourhood of 3d. per lb. A quiet demand has been reported in the case of nitrite of soda and values are steady at about £19 5s. per ton.

A steady tone is in evidence in respect of pretty well all the potash compounds. Caustic potash meets with a fair demand and is firm at £30 10s. per ton. Carbonate is still being offered here at about £26 5s. per ton, and a moderate business has been reported. Permanganate of potash remains steadier than it has been of late, although the demand for this is still rather quiet; B.P. quality is quoted at 6d. to 6¼d. per lb., and the commercial material at round 5⅝d. Yellow prussiate of potash meets with a limited amount of inquiry at 7¼d. per lb. There is not much stirring in the case of chlorate of potash, but values are pretty much as they were a week ago, from 3⅜d. to 3½d. per lb. being quoted. Bichromate of potash is steady and in quiet demand at 4¼d. per lb.

Arsenic continues easy at £16 to £16 10s. per ton at the mines for white powdered, Cornish makes, and there has been no extension of buying interest in this material. Sulphate of copper, however, is a firm section at about £25 per ton, and a fair amount of business is being put through. There is only a quiet trade being done in acetate of lead, but quotations are steady at £44 per ton for white quality and £42 for brown. Nitrate of lead is in limited demand, but at £39 per ton there is little or no change in prices to report. Acetate of lime has attracted little attention and grey continues easy at £15 10s., with brown about unchanged at £9.

Acids and Tar Products

Oxalic acid seems to have settled down in the neighbourhood of 3d. to 3⅛d. per lb., and a quiet business is being done. Citric acid keeps very firm at about 1s. 4½d. per lb., although buyers are not operating very extensively. Tartaric acid is in moderate request and values are fully maintained at 1s. 2¾d. per lb. Acetic acid is moving off in moderate quantities at steady prices, with glacial quoted at £67 per ton and 80 per cent. commercial at £37.

Pitch remains rather quiet and quotations are easy at round £3 15s. per ton, f.o.b. Creosote oil, however, is quite steady at 7⅛d. to 7¾d. per gallon, and inquiry for this is fairly active. Solvent naphtha is a slow section of the market and values are weak at 1s. 4d. per gallon. Carbolic acid crystals are firm and in active demand at 9¼d. per lb.

London Chemical Market

Messrs. Chas. Page and Co. report that owing to the Easter holidays, markets have hardly yet reopened, and the usual weekly report is deferred. Prices continue generally very firm, and the only outstanding feature seems to be a sharper tendency in acetone. Export trade is very quiet.

Latest Oil Prices

LONDON.—April 20.—Linseed Oil steady, but quiet. Spot, £31 10s., ex mill; April, £30 12s. 6d.; May, £30 15s.; May-August, £31; September-December, £32. Rape Oil inactive. Crude, extracted, £44 10s.; technical refined, £46 10s., naked, ex wharf. Cotton Oil quiet. Refined common edible, £40; Egyptian, crude, £34; deodorised, £42. Turpentine quiet and 3d. per cwt. lower. American, spot, 45s. 6d.; May-June, 45s. 9d.; and July-December, 47s. 9d.

HULL.—April 20.—Linseed Oil.—Naked, spot and April, £31 10s.; May-August, £31 17s. 6d.; September-December, £32 2s. 6d. Cotton Oil.—Naked Bombay crude, £33; Egyptian crude, £34 10s.; edible refined, £38; technical, £36 10s.; deodorised, £40. Palm Kernel Oil.—Crushed naked, 5½ per cent., £37 10s. Groundnut Oil.—Crushed, extracted, £44; deodorised, £48. Soya Oil.—Extracted and crushed, £33 10s.; deodorised, £37. Rape Oil.—Crude-extracted, £44; refined, £46 per ton, net cash terms. Castor Oil and Cod Oil unchanged.

Nitrogen Products

Export.—As the season advances, it appears that the home demand is not absorbing the whole of the British production, and further quantities are available for export. As a consequence the price has receded to £10 15s. per ton, f.o.b., in single bags. Continental countries are still purchasing large quantities and the Far East have been purchasers of smaller quantities. The American position still remains tight. In some districts consumers are having to wait a few days for their supplies, but there seems no likelihood of an actual shortage. Consumption proceeds very satisfactorily in Central Europe.

Home.—On account of the wet condition of the land the demand for sulphate continues sluggish. In some districts it is expected that larger orders will come in later. This is particularly true in Scotland. It is understood that the total deliveries up to the present are still ahead of those of last year, but current orders are smaller.

Nitrate of Soda.—For prompt delivery nitrate prices remain unchanged. Only small supplies are available in Europe, but, of course, large stocks are being carried in Chile. In anticipation of a large drop in the nitrate market, speculative offers have appeared in the nitrate market for forward positions at about £9 15s. per ton. c.i.f. chief continental ports. The threatened break-up of the Chilean Producers' Association may result in nitrate prices finding their economic level with a consequent increase in consumption.

Calcium Cyanamide

The demand for this fertiliser continues to be brisk, increasing interest in its use being shown for roots generally and sugar beet in particular. As announced in our previous issue, the price for April is £9 16s. per ton for 4-ton lots, carriage paid to any railway station in Great Britain.

Nitrate Rumours Denied

The president of the Anglo-Chilean Nitrate Corporation, the Guggenheim subsidiary, has issued a statement denying that there is any thought of selling the concern to the I.G., the largest producer of synthetic nitrate in the world. On the other hand, the new process is said to be so satisfactory that the preliminary reports from the large new Chilean plant exceed expectations. It was recently reported that, in addition to speeding up the output of the new plant, it has been decided to reopen the three old oficinas of the Corporation, and this seems to point to a considerable price-cut when the present agreement forming the Producers' Association is terminated at the end of the half-year. Immediate developments seem to include large increases in production under the new process, and by the most efficient producers under the old, with the consequent squeezing out of the inefficient.

Company News

CANADIAN EXPLOSIVES CO.—A dividend of 1¾ per cent. has been declared for the quarter ended March 31, 1927, on the 7 per cent. cumulative preferred shares, payable on April 15 to shareholders registered on March 31, 1927.

ROPP TIN CO.—An interim dividend of 10 per cent., less tax, has been declared on account of 1927, payable on May 11. At the annual general meeting, to be held on May 4, the directors will recommend a final dividend of 15 per cent., less tax, for 1926, making a total of 55 per cent. for that year. For 1925 the total dividend was 65 per cent.

TARAPACA AND TOCOPILLA NITRATE CO.—The net profit for 1926 amounted to £3,963, which it is proposed to carry forward, the directors having decided not to recommend any dividend in view of the unsatisfactory state of the nitrate industry and the uncertainty of its future. For the preceding year the net profit was £38,835, and no dividend was paid.

ENGLISH CHINA CLAYS, LTD.—The net profit for the year 1926 was £57,622 (as compared with £83,019 for the preceding year). Adding £11,176 brought in, there is £68,798 available. The directors recommend a final dividend of 1 per cent., making 3 per cent. for the year, on the ordinary shares (against 4½ per cent. for 1925), leaving £9,394 to carry forward. The report states that the direct and indirect effects of the general strike and the coal strike are the main causes of the decline in profits, and the effect will still be felt in the early part of this year.

AGUAS BLANCAS NITRATE CO.—There was a loss on the trading for 1926 of £7,350 (against a gross profit of £71,871 for 1925), in addition to which closing down expenses, etc., debenture interest, and London charges amount to £68,213. After allowing for income from investments, etc., and profits on sale of securities, £2,109, and transferring the reserve account and balance of income-tax provision, £29,816, the net result is a debit balance of £43,638. This converts the credit balance of £35,073 brought forward into a debit balance of £8,565. No dividend is declared. The oficinas will not be reopened until the cost of placing nitrate on board can be reduced. As it was impossible to meet the interest on and amortisation of the debentures due on May 1 next, a meeting of the debenture holders was held on April 4, when it was resolved that the operation of the sinking fund and interest be postponed until May 1, 1931, unless conditions justified earlier payments. The conditions of this postponement have already been announced. The shareholders will be asked to ratify the arrangement.

Annual Meeting of Tarmac, Ltd.

MR. EDWARD HICKMAN, J.P. (the chairman), presiding at the annual meeting of Tarmac, Ltd., at Birmingham on Thursday, April 14, in moving the adoption of the report and accounts, said that it was the first annual meeting he had addressed when it had not been possible to pay a dividend. Discussing the loss of £6,202, he pointed out that tar had cost nearly £40,000 more in 1926 than in 1925, and coal £10,000 more. He had several times previously pointed out that money was lost on the first 100,000 tons of Tarmac turned out and the profit was made on the last 100,000 tons. In the year just closed the last 100,000 tons was not reached, nor even the next one to that; in fact, the output was 25 per cent. less in 1926 than in 1925. It should be borne in mind that the dead expenses were the same, or nearly the same. He paid a tribute to the loyalty of the company's staff during the general strike. Turning to the future, he said that here he could adopt a more cheerful tone. February had been a record month, and March was excellent. He intended to advise his colleagues on the board to pay on May 1 the preference dividend which shareholders should have received on January 1. The prospects of the company had never been brighter than they were at the moment. Never within his recollection had they had such a full and promising order-book as they had to-day. He believed himself that it would be possible to pay the dividend on the preference shares due on July 1, and also a small interim dividend on the ordinary shares later, but a small one was better than nothing. The report was adopted.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us by Gee & Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to May 13, 1927.

"FILTKON."

477,926. Class 2. Chemical substances used for agricultural, horticultural, veterinary and sanitary purposes. F. Kendell and Son, Ltd., The Chemical Works, Birmingham Road, Stratford-on-Avon, Warwickshire; brewers' chemists. February 17, 1927.

"PINAKRYPTOL."

466,110. Class 1. Desensitisers, being chemical substances used in photography. I. G. Farbenindustrie Aktiengesellschaft (a joint stock company organised under the laws of Germany), Mainzerlandstrasse 28, Frankfort-on-Main, Germany; manufacturers. January 14, 1926.

Non-Inflammable Film Co.: Statutory Report

THE statutory report of the Non-Inflammable Film Co., Ltd., states that the total number of shares allotted is 500,000 ordinary shares of £1 each and 1,000,000 deferred shares of 1s. each, of which the 500,000 ordinary shares and 100,000 of the deferred shares have been issued wholly for cash and the remaining 900,000 of the deferred shares have been allotted as fully paid up, as part of the consideration payable by the company on the sale to the company of the sole rights in certain patented and other improved secret processes, plant, machinery and other assets under agreement dated January 14, 1927, as set out in the prospectus. The total amount of cash received by the company in respect of the shares issued wholly for cash is £302,935. The payments on capital account to April 14, 1927, are as follow: Consideration payable in cash under agreement for sale dated January 14, 1927, as set out in prospectus, £70,000; commission on underwriting capital, £20,000; preliminary expenses, as set out in prospectus, £32,500; plant, machinery, premises, fixtures, and furniture, £5,781; stamp duty on agreement for sale, £1,050; miscellaneous payments, including purchase of material, wages, salaries, and sundry expenses, £2,915; balance, being cash at bankers, £170,696; total, £302,943. The following is an account (or estimate) of the preliminary expenses of the company: Amount paid, as per prospectus, for preliminary expenses down to the first general allotment of shares, including registration fees, legal costs, and other payments, £32,500; commission for underwriting shares, £20,000; professional charges (estimated), £1,000; total, £53,500. Meeting, Caxton Hall, Westminster, London, S.W., April 28, at 11.30 a.m.

Benzol and By-Products, Ltd.: Annual Meeting

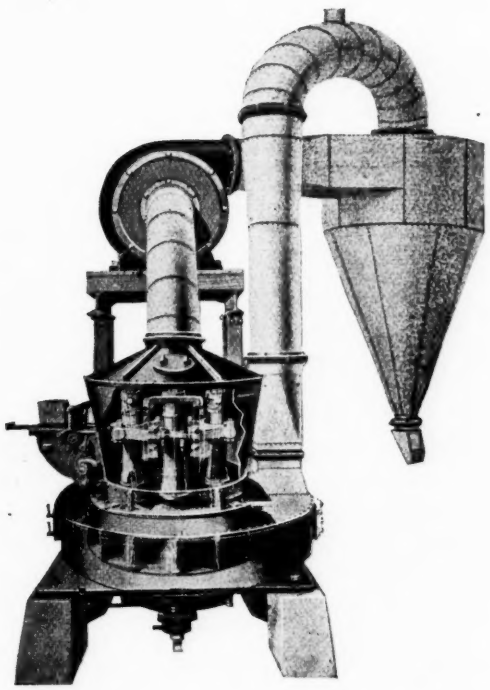
THE annual general meeting of Benzol and By-Products, Ltd., was held in London on Thursday, April 14, Sir A. H. McMahon, the chairman of the company, presiding. He said that in 1925-26, owing to the adverse conditions of the period, their production of coal, coke, sulphate of ammonia, pitch, and benzol was in almost every case little more than half that of the previous year. It was, therefore, hardly to be wondered at that the working of such a year showed a loss. What he ventured to say was wonderful, was that the figures of loss had not been greater, and for that they were indebted to the care and economy with which their interests had been protected during a very anxious time, and to the loyalty and devotion of their colliery officials and staff. In regard to the future, he stated that they were starting operations after the enforced stoppage with the advantage of thoroughly overhauled, and, where necessary, renewed plant.

THE PRODUCTION OF ARTIFICIAL SILK from esparto grass is receiving a good deal of attention. In Italy, the Soie de Chatillon is said to be interested in the process. A foreign syndicate is considering possibilities in Spain, and a factory for the production of artificial silk by this means may be erected in Valencia. The Dutch Enka Co. is also mentioned in connection with the process.

Phosphate Grinding

Save Acid by Using

RAYMOND MILLS



Send for a copy of Raymond Survey giving Phosphate Process data in conjunction with Raymond Roller Mills, which have replaced other types of mills on the Continent and at home, and for which repeat orders have recently been received.

OUR TECHNICAL STAFF IS AT YOUR SERVICE

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INCORPORATING HARDINGE CO. FOR EASTERN HEMISPHERE

GRINDING & PULVERIZING OFFICES
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WORKS:— BARROW-IN-FURNESS — DERBY — ERITH.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgment

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

BO-NO INCORPORATED, 37, Eastcheap, E.C., disinfectant manufacturers. (C.C., 23/4/27.) £21 7s. 10d. February 23.

WILSON BROTHERS, 135, Market Street, Farnworth, chemical manufacturers. (C.C., 23/4/27.) £35 8s. 5d. March 16.

Mortgages and Charges

[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]

ANGLO-PERSIAN OIL CO., LTD., London, E.C. (M., 23/4/27.) Registered April 5, trust deed dated March 30, 1927, supplemental to trust deed dated May 25, 1909; general arge. *£4,125,000 debenture stock, £1,792,500 secured notes, £2,290,000 debenture stock deposited as collateral security for secured notes. November 16, 1926.

RENTOKIL, LTD., London, E.C., disinfectant manufacturers. (M., 23/4/27.) Registered April 6, £50 debenture, to Miss E. J. Eades, 86, Tantallon Road, Balham; general charge.

SOUTHERN SILICA, LTD., London, S.W. (M., 23/4/27.) Registered April 6, £8,000 debentures (filed under sec. 93 (3) of the Companies (Consolidation) Act, 1908), present issue £1,000; general charge. *Nil. February 2, 1927.

London Gazette, &c.

Company Winding Up Voluntarily

DAVIES, SONS AND COMPANY (DERBY), LTD. (C.W.U.V., 23/4/27.) A. G. Mellors, King John's Chambers, Bridlesmith Gate, Nottingham, chartered accountant, appointed liquidator, April 11. Meeting of creditors at liquidator's office, Friday, April 29, at 2.30 p.m.

New Companies Registered

ABIETSAN MANUFACTURING CO., LTD. Registered April 12. Nom. capital, £500 in £1 shares. Manufacturers of, agents for the sale of and dealers in pine extracts, perfumery and toilet goods, soaps, creams, ointments, etc., and to acquire from the White Sea and Baltic Co., P. and I. Danischewsky, Ltd., the benefit of the trade mark "Abietsan," in respect of chemical substances and perfumery, etc. Directors:—I. Danischewsky, 101, Tannsfield Road, Sydenham, London, S.E.26; E. Danischewsky; A. Danischewsky.

ARTHUR AND HINSHAW, LTD., 4, Blythswood Square, Glasgow. Registered in Edinburgh, April 14. Nom. capital, £85,000 in 55,000 preference, 10,000 "A" ordinary and 20,000 "B" ordinary shares of £1 each. Drysalters, chemists, refiners, extractors, grinders, crushers, manufacturers, exporters and importers, etc. Directors:—J. N. Nicholson, P. B. Nicholson, and J. G. Nicholson.

CELLOSE MANUFACTURING CO., LTD., 152, Charles Henry Street, Birmingham. Registered April 13. Nom. capital, £4,000 in £1 shares. To acquire as from January 1, 1927, the business carried on at 152-3-4, Charles Henry Street, Birmingham, as the Cellose Co., to adopt an agreement with W. S. Randells, and to carry on the business of manufacturers, merchants, and workers of and dealers in celluloid, celluloid paints, etc.

JOSEPH METCALF, LTD., Argyle Works, Argyle Street, Accrington. Registered April 11. Nom. capital, £5,000 in £1 shares. Chemical manufacturers, glue, size, gelatine, bone or other artificial manure manufacturers, fat extractors, etc. Directors:—J. Metcalf and H. W. Marshall.

Ceramic Society: Annual Meeting

THE annual meeting of the Ceramic Society was held at the North Staffordshire Technical College, Stoke, on Monday, April 11, Mr. F. Turner presiding. The Council, in their 26th annual report, stated that there was a membership of 707, and 77 collective members. During the closing session eight meetings were held at Stoke, and the Refractory Materials Section had a successful two days' meeting at Leeds in September. The arrangements had been completed for the visit of members to Czecho-Slovakia. Between seventy and eighty members intended to go. They would be the guests of the Czecho-Slovakian Ceramic Society. It was announced that the president for the ensuing year would be elected by the Refractory Materials Section. The following other officers were elected:—Vice-Presidents: Mr. G. Price, Mr. B. J. Moore, and Mr. W. Emery; council: Messrs. A. J. Campbell, C. D. Grimwade, G. Price, T. G. Simpson, G. Campbell, J. A. Audley, A. Heath, G. Allman, J. H. Colclough, T. A. Simpson, T. Simpson, D. F. W. Bishop; hon. secretary, Dr. J. W. Mellor.

American Production of Synthetic Methanol

THE first American production of synthetic methanol is under way on a commercial scale at Belle, near Charleston, where a plant is being operated by Lazote, Inc., affiliated with the du Pont company. Two years of intensive research and experimental work have, it is claimed, resulted in the development of a new and purely American process, radically different from, and an improvement over, the foreign processes which a few years ago started to revolutionise the methanol industry. It was expected that American producers would operate under French or German patents, but this new process is all American. The American demand is about six million gallons a year. The new plant, operated in conjunction with Lazote's synthetic ammonia manufacture, produces methanol from carbon monoxide and hydrogen under enormous pressures and at high temperatures. The commercial units, now in production, were built after an experimental plant had been operated satisfactorily for six months.

The Directory of Paper Makers, 1927

HAVING been revised and brought up to date, *The Directory of Paper Makers* (published by Marchant Singer and Co., 5s. 6d.) appears in a 1927 edition. This useful volume covers its ground very thoroughly. Its contents are arranged as follows: alphabetical list of paper makers (giving in each case the products supplied); list of paper enamellers, surfacers, etc., and suppliers of special varieties; paper makers' representatives and paper agents; London wholesale stationers; list of mills; classification of makers with makers' names; trade designations (including actual watermarks and trade names not being actual watermarks); paper trade customs; and standard names and sizes of paper and boards. This publication seems quite indispensable to all connected with the paper trade.

Air Filters

IN the development of modern industry much work must be done in an atmosphere of clean (and often germ-free) air. The Visco Engineering Co., Ltd., of 162, Grosvenor Road, London, S.W.1, provides for this purpose the "Visco" air filter, a type based on the adhesion of dust to oil film-covered surfaces. Among the cases to which this filter may be applied are electrical power plants; air compressors; internal combustion engines; breweries (for producing air free from bacteria, especially desirable in skimming and fermenting rooms); painting and varnishing shops (the increasing use of spraying methods in cellulose lacquer work suggests a great field); chemical works; textile mills, etc. Other applications will suggest themselves readily to all who are concerned in the chemical industry.